16

Quality Dimension Initiatives:

ACTION RESEARCH AND INNOVATIVE PRACTICES

Distance Education Programme-
Sarva Shiksha Abhiyan (DEP-SSA)

An IGNOU-MHRD, Govt. of India Project

सर्व शिक्षा अभियान
सब पढ़ें सब बढ़ें

IGNOU

सर्व शिक्षा अभियान
सब पढ़ें सब बढ़ें

Distance Education Programme (DEP) is a major intervention in Sarva Shiksha Abhiyan (SSA) focusing on "strengthening training through distance learning". SSA calls for the training of a large number of teachers and other personnel to bring out qualitative improvement in elementary education. As face-to-face approach or the cascade model would be inadequate to carry out the enormous task of training and recurrent training of those associated with elementary education, DEP has been envisaged to facilitate the process. The Programme through distance education provides inputs and materials for the training and capacity building of teachers and other functionaries in curricular, contextual and pedagogical areas.

DEP-SSA has been created by the Ministry of HRD, Dept. of Elementary Education & Literacy, Govt. of India as a national center for distance education activities under SSA on 1st July, 2003 and implemented by IGNOU, New Delhi in all the States and UTs of the country. It provides technical support to the states enabling them to adopt distance education as an integral part of SSA. It aims at imparting need-based, local specific in-service training for teachers and other functionaries directly involved in elementary education programme.

260

Div's reference library

Quality Dimension Initiatives: Action Research and Innovative Practices

Distance Education Programme – Sarva Shiksha Abhiyan (DEP-SSA)

Library
Calcutta
B. C. Road

March, 2005

(An IGNOU – MHRD Govt. of India Project)
Indira Gandhi National Open University, Maidan Garhi, New Delhi - 68

सर्व शिक्षा अभियान
सब पढ़ें सब बढ़ें

Quality Dimension Initiatives: Action Research and Innovative Practices

© 2005 DEP-SSA, IGNOU

Published by Administrative-cum-Finance Officer on behalf of the Project Office:
DEP-SSA, IGNOU, New Delhi

Printed at : Berry Art Press A-9 Mayapuri New Delhi - 110 064

Acc no- 16144

225/Gift

FOREWORD

The National Policy on Education (1986, modified in 1992), laid emphasis not only in achieving universalisation of elementary education in a time bound manner but also in ensuring an essential and reasonable level of its quality. The Sarva Shiksha Abhiyan (SSA), a centrally sponsored programme in close collaboration with States/UTs is aimed at fulfilling twin objectives of universalisation and quality of education at the elementary stage. The role of school teacher is crucial since improvement in quality depends as what teachers teach, how they teach and evaluate the children. The teacher has to play multi-dimensional roles of acting as mentor, facilitator, guide, innovator, experimentalist and above all constant learner. Innovative and good classroom practices can flow only from a focused mindset and from commitment for the noble profession of teaching and learning. The contributions by teachers/teacher educators which have been included in this publication strongly reflect their commitment and interaction for the teaching learning process.

I am confident that good classroom practices for quality education contained in this publication will serve as a source of encouragement and notivation for replication elsewhere.

I congratulate Prof. S.C. Garg, Pro-Vice-Chancellor, IGNOU, Prof. S.V.S. Chaudhary, Project Director, DEP-SSA and members of his team for bringing out this publication for wider use by institutions and individuals all over India. I would like to express our thanks to the Department of Elementary Education and Literacy, Ministry of Human Resource Development, Government of India for sponsoring the National Seminar. I would also like to put on record our appreciation to the contributors as well as their organizations whose papers have been included in this document.

I look forward to more such contributions in future as the out-come of national level programmes under DEP-SSA.

Prof. H.P. Dikshit
Vice-Chancellor, IGNOU
&
Chairman, DEP-SSA

January 15, 2005
IGNOU, New Delhi

PREFACE

The school has a vast spectrum of activities to enhance learning experience of both the teacher and the learner such as, environment project for upper primary children programme of action research for slow learner or drop-out children and involvement of children in community hygiene and sanitation. Such activities also encourage community involvement and helps in establishing rapport between school and community.

With this approach in mind, DEP-SSA organized a three-day national seminar on 'Innovative Practices and Promotion of Action Research at the Elementary Stage of Education' during 25-27 March, 2004 at New Delhi. The purpose of this seminar was to identify innovative practices and promote action research among elementary school teachers and teacher educators. The idea is to improve the physical access to non-enrolled children in regular primary schools and enhance their achievement level by practicing activity-based teaching process. It is noteworthy that the responses were quite encouraging. Twenty-nine papers were presented in different technical sessions. Majority of them, which have been included in this publication, are field-based case studies categorized either as innovative practices or action research. Majority of these papers deal with the curricular areas related to teaching of Science, English, Environmental Studies, Geography. Some of them deal with the promotion of child-centered and activity-based learning. It is also quite interesting to note that during the operation of District Primary Education Programme (DPEP) teachers were motivated to undertake various innovative practices and action research in the classroom transactional process. It is all the more heartening that majority of the contributions were from District Institute of Education and Training (DIET).

Use of Information and Communication Technology (ICT) to improve the teaching-learning process is a recent phenomenon in Indian context. Two papers included in this document do vouchsafe for the potential use of computers in classroom teaching. Cooperative learning approach in enhancing achievement and sociability, multi-grade and multi-level teaching, development of bridge courses for dropouts, and integrating physically challenged children in the mainstream education are some other themes which are of interest to the practitioners of the elementary stage of education.

I express my gratitude to the Department of Elementary Education and Literacy, Ministry of Human Resource Development, Government of India in sponsoring Distance Education Programme under Sarva Shiksha Abhiyan (DEP-SSA) to strengthen and support in-service teacher training at the elementary stage. My thanks are due to Prof. H.P. Dikshit, Vice-Chancellor, IGNOU and Chairman, Advisory Committee (DEP-SSA) and Prof. S.C. Garg, Pro-Vice-Chancellor, IGNOU who provided necessary administrative and academic guidance for smooth conduct of the seminar. I am also thankful to all the participants without whose cooperation this publication would not have seen the light of the day. My thanks are also due to the organizations that deputed their faculty to this seminar.

I am also very grateful to Prof. V.K. Sabharwal for content editing and Prof. R.K. Dixit for language editing. I express my gratitude to Prof. V.P. Garg, Consultant who coordinated the entire task of publication. I wish to put on record the administrative support extended by Shri Chandra Ballabh, Administrative-cum-Finance Officer and his m in organizing the seminar and publishing this book.

pe that this publication will be useful to all those who are involved in the qualitative quantitative improvement of elementary education in the country. The case studies umented here may be replicated elsewhere by the school teachers and teacher ucators who are the key players in the task of universalisation of elementary education d intend to bring creative and bold change in the classroom practices.

Dated: January 10, 2005
New Delhi

S.V.S. Chaudhary
Project Director

CONTENTS

Page

Foreword i
Preface ii
Contents iv
List of Abbreviations vii

1. Introduction 1-

2. Aspects of Quality Elementary Education in the Context of Rural Areas 6-1
S.K. Gandhe

3. Effective Monitoring, Management and Implementation of District Primary Education Programme 17-
Y. Bhaskaracharyulu

4. On-the-Job Support for Elementary Teachers and Teacher Educators 24-2
Manju Rajoria

5. Bridging the Gap through Bridge Courses – An Appraisal 27-35
Anil Shukla

6. Teaching Computers in Primary Schools: An Exploratory Action Research 36-39
D.K. Chakraborty

7. Improving the Achievement Level of Standard III Children in EVS through Power Point 40-49
S. Vincent De Paul

8. Improving Teaching through Innovative Practices at Elementary Stage 50-64
M.N. Bapat and N.R. Nagaraja Rao

9. Effects of Cooperative Learning Approach in Enhancing Achievement and Sociability among Elementary School Children 65-69
B.N. Panda

10. Teaching of Erosional Landforms Made by Geomorphological Agents (Rivers and Glaciers) at Upper Primary Level (Std VIII) through Activities – A Study 70-85
L. Sundara Meenakshi

11. **On-the-Spot Observation – An Innovative Strategy in Teaching-Learning of English Language** 86-96
K. Chellamani and S. Mohan

12. **Teaching without Lecturing: An Approach for Teaching English Pronunciation** 97-105
Lakh Narain Pandey

13. **Teaching Reading English to Poor Readers of Primary Classes through Bilingual Method - An Empirical Study** 106-120
C. Jeyalakshmi

14. **A Successful Classroom Practice Accepted by the Practitioners** 121-129
M. Chinnappan

15. **Theory Supporting Cards: An Attempt to Achieve Better Classroom Practice and Providing Joy in Theoretical Learning of Environmental Science at Primary Level** 130-139
M. Selvam

16. **Educational Efficiency of Elementary Teachers on Environmental Concepts – A Study from Pondicherry Region** 140-151
K. Sampath, T. Sundaramoorthy and V. Ramalingam

17. **Improvised Science Apparatus for Elementary Classes from the Disposable Plastic Containers** 152-163
M. Mihuraj Fatima

18. **Developing the Skill of Using Chemical Symbols through Playway Method Using Cubes** 164-171
R. Kailasavani

19. **Impact of Training Programmes on the Performance of Teachers at Elementary Stage of Education: A Critical Study** 172-180
Nimma Venkata Rao and B.B. Rao Kandregula

20. **Effectiveness of Interventions under EGS and AIE Scheme for Universal Enrolment** 181-190
P. Jayaraman

21. **Action Research Approach Towards Quality Education**
Krishna Kumari 191-202

22. **A Study of a Pre-Primary School and its Impact on Primary Education in Achieving the Objectives of SSA** 203-20
M. Mathiazhagan and R. Anbazhagan

23. **Improving the Learning Skills of Hearing Impaired Children in a Regular Classroom through Playway Activities** 210-22
Vanitha Daniel

24. **दीपोत्सव/प्रकाशोत्सव - जनसहभागिता प्राप्त करने हेतु अनूठा प्रयास व नवाचार** 222-23
विनोद कुमार गुप्ता

25. **कुंजापुरी मॉडलः प्राथमिक शिक्षा क्षेत्र में उत्तरांचल राज्य में एक अभिनव प्रयोग** 235-247
रंग बहादुर सिंह

26. **प्राथमिक विद्यालय में बहु कक्षा एवं बहुस्तरीय शिक्षण - नवाचारात्मक प्रयोग** 248-256
लक्ष्मी नारायण आचार्य

Bibliography 257-264

List of Contributers 265-266

Index 267-268

Abbreviations

AIS	:	Alternative Innovative Scheme
AIE	:	Alternative Innovative Education
APPEP	:	Andhra Pradesh Primary Education Project
BRCC	:	Block Resource Center Coordinator
BRC	:	Block Resource Center
CLA	:	Cooperative Learning Approach
CLT	:	Communicative Language Teaching
CRC	:	Cluster Resource Center
CNW	:	Child/Community Nutrition Worker
CWO	:	Child Welfare Organizer
DPEP	:	District Primary Education Programme
DEP-SSA	:	Distance Education Programme - Sarva Shiksha Abhiyan
DIET	:	District Institute of Education and Training
D.Ed	:	Diploma in Education
DPO	:	District Project Office
EGS	:	Education Guarantee Scheme
EFA	:	Education for All
ECCE	:	Early Childhood Care and Education
ECE	:	Early Childhood Education
ELT	:	English Language Teaching
FFA	:	Framework for Action
GER	:	Gross Enrolment Ratio
GDP	:	Gross Domestic Product
ICDS	:	Integrated Child Development Scheme
ILO	:	International Labour Organisation
JSK	:	Jan Shikshan Kendra
LJP	:	Lok Jumbish Project
MLL	:	Minimum Levels of Learning
NPE	:	National Policy on Education
NGO	:	Non-governmental Organization
NCERT	:	National Council of Educational Research and Training
NFE	:	Non-formal Education
OBB	:	Operation Blackboard
PLAT	:	Pronunciation Learning Achievement Test
SSA	:	Sarva Shiksha Abhiyan
SOPT	:	Special Orientation of Primary Teachers
TLM	:	Teaching Learning Material
TSCs	:	Theory Supporting Cards
TINP	:	Tamil Nadu Integrated Nutrition Programme
UEE	:	Universalization of Elementary Education
UNDP	:	United Nations Development Programme
VEC	:	Village Education Committee
VLMC	:	Village Level Monitoring Committee
WHO	:	World Health Organization

1

INTRODUCTION

Background

Dakar Framework for action underlines that quality is at the heart of education and what takes place in class-rooms and other learning environments is fundamentally important to the future well-being of children, young people and adults. Multi-pronged approach covering different aspects and dimensions viz. physical access, retention, learning are considered of prime importance for school going children in the age group 6-14. Retention and learning are endogenous factors of school efficiency and effectiveness whereas physical access is exogenous factor to be facilitated by the state. Good and innovative practices in school create healthy environment for retention and learning of the child. The role of the teacher is pivotal. The teacher has to play a multi-dimensional role to achieve the desired goals and objectives by ingenuity, resourcefulness, positive frame of mind to adapt, adopt and practise such innovative practices in classroom. The teacher is to find ways and means as an innovator which is possible if he/she is interested in diagnosing the problem(s) of the child and finds a 'way out'. This prognosis is known as 'action research' in technical jargon.

With a view to promote innovative practices and action research at the elementary stage, DEP-SSA organized a **three-day '*National Seminar on Good Innovative Practices and Promotion of Action Research at the Elementary Stage of Education'*** from **25-27 March, 2004** at **Jamia Hamdard, New Delhi**.

Objectives

The objectives of the seminar were to:-

- Identify some meaningful and good practices and action research projects which have been carried out by the practicing teachers and teacher educators.
- Provide a forum for sharing their experiences with their colleagues.
- Disseminate the selected case studies/papers by publishing the same for wider replication.

Nature of Participation

Due publicity was given through direct correspondence to State Project Directors of Sarva Shiksha Abhiyan; Principals of Institute of Advanced Studies in Education (IASEs), Principals – Regional Institute of Education, Ajmer, Bhopal, Bhubaneswar, Mysore, Directors of State Councils of Educational Research & Training (SCERTs) and other educational institutions. As a result of this correspondence, it became possible to involve educationists, teacher educators and faculty members of SCERTs, DIETs, Teacher Training Colleges and Department of Education of Universities.

Number of Entries

Wide publicity brought 66 entries and after scrutiny by the Screening Committee constituted for the purpose, 35 papers were selected. However, only 29 presentations were made by the participants who attended this seminar.

In the present volume, 25 papers have been selected on their academic merit. The list of the contributors is given in Annexure-I. Twelve papers fall under innovative practice category; seven papers may be classified as part of action research, two case studies discuss the application of Information, Communication Technology (ICT) and four papers discuss the approach of good practices and action research with an orientation towards quality issues and concerns in improving the pedagogy of the class-room practices.

Overview of Papers

Gandhe in his paper recommends a multi-pronged approach to quality improvement that addresses various issues that affect quality of elementary education. After examining the educational scenario of Maharashtra, he argues that in this state, the rural elementary education system will come about only when the community accepts the school as its own. The Indian Institute of Education, Pune has successfully tried a model based upon 'local-felt needs' and local culture-specifics. He advocates bottom-up curriculum planning that takes care of special needs and sensitivities of rural communities.

Bhaskaracharyulu examines the process of effective monitoring, management and implementation of District Primary Education Programme (DPEP). It is a micro-analysis on 30 respondent teachers from 10 schools comprising five from rural areas and five from urban areas of Vishakapatnam district in Andhra Pradesh. Highlighting the observations/responses, the author suggests measures like: creation of access to primary facilities village-wise in backward and tribal pockets of Vishakhapatnam; fixation of targets at the village and school level; preparation of effective perspective plan for the implementation of DPEP; identification of out-of-school children; effective implementation of total literacy campaigns; provision of adequate infrastructural facilities, effective functioning of participatory committees and organization, 100 percent achievement level; reduction of drop outs through residential bridge courses, non-residential bridge courses and alternative schools; greater collaboration with NGOs; improvement of girls enrolment; conduct of extra curricular activities in the schools; development of pre-school activities and identification of child labour.

Observing the same concern of rural area schools where poor infrastructure, high-pupil teacher ratio and most teachers teach without planning and teaching aids, **Rajoria** recommends on-the-job support inputs through Block Resource Coordinators and Jan Shikshas. On-the-job-support to teachers was provided in the form of preparing timetable according to the students needs, characterstics and problems; development of teaching aids and planning in order to use it more effectively; better class management for optimal use of available time and resources; carrying out evaluational analysis; diagnosing students weaknesses and gaps in learning; conducting remedial teaching classes; sharing of one's ideas, experiences and problems with their colleagues; and road map for organizing activities other than classroom teaching. This is meant to improve the situation. She comes out with a roadmap for improving efficiency of teacher through five-step-plan; i) **Plan** teaching ii) **Share** knowledge experiences, teaching resources with co-teachers in neighbouring schools iii) **Create** opportunities for students to learn in group or independently under teachers guidance iv) **Evaluate** performance and experiment v) **Organize** competitions for students as well as teachers and participate in them to enhance learning.

Shukla assesses the strengths and weaknesses of Janshala experiment for primary school children of Lucknow city who were not enrolled in any school. After identification of these non-enrolled children, temporary schools (learning centres) were started for these children and bridge courses were taught through Balashakhais (para teachers). The results are presented in terms of five dimensions that affect student i) enrolment and retention ii) academic performance iii) social dimensions iv) discouraging factors and v) motivating factors. It can be inferred from these results that there is wide gap between the planning and the delivery process of this Janshala Scheme and commitment of teachers. Obviously suggestions given by Shukla are to improve the commitment at all levels who operate the scheme.

In recent years, emphasis has been laid on to introduce computers in schools as a support for learning. In order to assess this aspect of learning support **Chakraborty** conducted a small study on 40 weak students of standard IV from ten-state-funded schools of Kolkata city. His findings suggest that even weak students from poor families take interest in learning with the aid of computers. They have performed basic computer operations taught to them as well as their better placed classmates. The teachers too felt they could try out the use of computer in their classroom quite effectively. Another case study on computer application is by **Paul** who experimented his teaching through conventional vs Powerpoint software teaching on computer. Ten students of Standard III of A. Pudupatti Panchayat Union Primary School of Viramalai block in Pudukkottai district of Tamil Nadu were taken as the sample for the study. This school is a multi-grade one and has two teachers. He evolved seventeen activities for learning through the use of computer. The developed powerpoint software can provide direct learning experiences for enhancing student competencies in population education. In multi-grade school settings Powerpoint software is a powerful tool for teaching learning.

Child-centered learning and activity based teaching creates environment for joyful learning. It drives away the classroom drabness and dullness. Both teachers and students enjoy the happy hours of the school. **Bapat**, **Rao**, **Panda** and **Gupta** aim at child-centered and activity based teaching approach. Bapat and Rao use project-based learning involving students to work on project in individual capacity as well as in group. Panda recommends Cooperative Learning Approach (CLA) based upon a case study of its effect on 72 eight-grade students of a Kendriya Vidayalaya in Bhubaneshwar. Gupta describes an innovative approach in Kundam Block in Jabalpur district (Madhya Pradesh) where Deepotsav (festival of lights) brought community and school closer. It enhanced parental concern towards their wards and resulted in higher pass percentage of Class V students in their annual examination between 1998-99 and 2002-03 from a level of 39.37 percent to 78.85 percent. **Rang Bahadur Singh** reports the success of Kunjapuri model tried in 31 project schools in three development blocks viz. Munsiari in district of Pithoragarh, Mori in district Uttarkashi and Bhilangana in district Tehri Garhwal of

Uttaranchal. Similarly, a case study by **Meenakshi** concludes that by adopting 'activity-based' approach, students learn more than taught through conventional approach. On the basis of the conclusion drawn on a sample of 100 Geography students of Class VIII she recommends that the use of teaching learning material (TLM) should be through conducting activities for reinforcement.

A study of student-teachers for Diploma in Teacher Education under the title - 'On-the-spot observation' – Innovative Strategy in Teaching Learning of English Language' by **Chellamani and Mohan** examines individual differences of student-trainees. It offers some lessons to all teacher educators. The investigators developed a customized curriculum comprising hands-on-experience on dictionary use, practice sessions on supra-segmental features, activity sessions on reading aloud and demonstration on speed function as its major focus for linguistic competence. English teaching particularly in Indian context where it is taught as a second language, is proving difficult for the teachers. English differs from most other living languages because of its non-phonemic characteristics; it is not written the way it is spoken. This creates additional difficulties for most learners. **Pandey's** case study was conceptualized with a view to develop an activity-based approach to the teaching of spoken English and particularly to develop correct pronunciation of commonly used words in the prescribed English Readers for Standard I-V. The results indicated that student-trainees of second year of a DIET in Madhya Pradesh who comprised 38 in the sample made significant progress. **Jeyalakshmi** recommends 'Teaching of English reading to poor readers of primary classes through bilingual methods'. Her recommendation is based upon action research on below-average primary stage students of Standard IV and V in Tamil Nadu. This is of course a deviation from the accepted principle of teaching-learning through English only. **Chinnappan's** study also based upon the activity based teaching support the view that it motivates learners and support their learning. He is of the view that a well-thought out instructional plan supported by a set of games improved learning of eleven commonly used English prepositions.

Selvam's method of using theory supporting cards helped in learning theoretical concepts of Environmental Studies at primary level. **Sampath Sundaramoorthy and Ramalingam's** assessment on educational efficacy of elementary teachers on environmental concepts showed that their knowledge as well as attitude for understanding EVS desired improvement.

Fatima's improvised science apparatus for elementary classes from the disposal plastic containers is to convey message that teachers can prepare low-cost indigenous apparatus in subject teaching by using disposal items. **Kailasavani's** experiment for developing the skill of using chemical symbols through play way method using cubes helped in learning Chemistry at the upper primary stage.

Next set of papers examine impact of training programmes on the performance of teachers at the elementary stage. **Rao and Kandregula** assess this impact on a survey-based study of 193 teachers drawn from two contrastive DPEP talukas of Rolugunta and Gajuwaka of Andhra Pradesh. Their findings suggest that their stay at work place and status of the permanent post of a teacher were found to have relatively more significant association with teacher performance. Authorities must ensure that the teachers stay at or near their work place. Secondly it was revealed that the performance of the vast majority of apprentice teachers (73 percent) is higher than that of most of permanent teachers. Similarly effectiveness of the interventions under Education Guarantee Scheme (EGS) and Alternative and Innovative Education Scheme for universal enrolment at primary stage, is assessed by **Jayaraman** in district Erode of Tamil Nadu. The findings of the study indicate positive results in terms of providing schooling to non-enrolled children, reduction in drop-outs under these schemes but at the same time, the investigator suggests close supervision and monitoring, constant in-service-teacher training programmes to the instructors of EGS, AIEs and non-discrimination between the AIE centres/camps and formal schools.

Action research by teachers to diagnose the local specific problem faced by them and work out solutions to these problems adds to their capacity building. **Krishna Kumari** reports the status of **Action Research** studies undertaken by Haryana school teachers during 1999-2002 in 15 areas at primary stage of education. The paper documents five such action research studies that can motivate primary teachers elsewhere. It is generally believed that pre-primary school education – Early Childhood Care and Education (ECCE) brings out quality improvement at the primary stage. This concept is endorsed by a case study done by **Mathiazhagan** and **Anbazhagan** of the primary school in Kurinjipadi block of Cuddalore, Tamilnadu. The investigators conclude that ECCE provides invaluable developmental inputs to young children and uses its facilities and resources for running a rich-activity based educational programme. **Laxminarayan** deals with the problem of single teacher schools through intervention of multi-grade and multi-level teaching as part of innovative practice. This is endorsed by his experiment in two schools at Shajapur, Madhya Pradesh on students of grade I-V. His treatment in multi-level, multi-grade teaching brought improvement over the base-line performance. The teaching-learning was conducted in these schools by 'peer group' of students who were used as 'monitors'.

Physically challenged children are being brought into the mainstream of education. General teachers are trained in special education to deal such children. **Daniel** in her paper *Improving the Learning Skills of Hearing Impaired Children in a Regular Classroom through Play Way Activities* suggests that hearing impaired children enjoyed and participated actively in play way activities with their other classmates.

Innovative practice and action research by the school teachers and teacher-educators at the elementary stage need documentation and dissemination for further replication by others. This is a small endeavour here which may serve its objective in promoting the cause of quality improvement of elementary stage of education and lead to professional competency of elementary school teachers and teacher-educators.

2

ASPECTS OF QUALITY ELEMENTARY EDUCATION IN THE CONTEXT OF RURAL AREAS

S.K. GANDHE

ABSTRACT

Even though educational planners all over the world recognize the importance of elementary education in national development, concerns about its quality improvement are often played down and centralized planning is looked upon as the best solution to its problems. This paper questions this approach and provides a viable alternative. The author stresses holistic elementary education for Indian children through a comprehensive programme of quality improvement. This paper recommends a multi-pronged approach to quality improvement that addresses various issues which affect the quality of elementary education. The author proposes that the vision and aims of elementary education should be the starting point for any attempt at quality improvement. He makes a strong case for grounding this process around 'local felt-needs' and 'local culture-specifics' and advocates bottom-up curriculum planning that takes care of the special needs and sensitivities of rural communities. Even though this paper is based on and deals with the state of Maharashtra, the approach recommended in it should be equally useful for other states.

1.0 INTRODUCTION

This paper is based on a research study recently conducted in three backward districts of Maharashtra to assess the quality of the elementary education scenario there. The study brought out the low quality status of the available educational facilities there and emphasized the need to plan and implement plans for improvement in these districts on a priority basis.

An analysis of progress in elementary education in the state of Maharashtra particularly in these three selected districts, revealed that good work done by the state with regard to improving access and enrolment in elementary education had been overshadowed by high drop-out and wastage rates which, in turn, were the result of shortfalls in other related elements of elementary education. The National Policy on Education (NPE) 1986, as revised in 1992, laid stress on substantial improvement in quality aspects of education without which the ultimate objective of holistic elementary education could not be achieved. The Sarva Shiksha Abhiyan (SSA) also emphasizes quality improvement as an essential aspect of the programme of Universalization of Elementary Education (UEE). Some of the important parameters to be considered in devising a holistic and comprehensive quality improvement plan for elementary education in Maharashtra are presented hereunder.

How does one define quality? It is not easy to precisely decide what constitutes the quality of education. Different persons may have different views in this regard. There are two aspects of quality: the quality of the system as a whole and the quality of what the system offers to the learner or the student. We have an elementary education system.

This system expects all children of a particular age-group to be schooled. This is not a question of learning but a question of access, and when the emphasis is on 'all children' access has to be concomitant with equity. This calls for an effective system of enrolment, certain minimum infrastructure, parental background, capacities and attitudes, and, in the final analysis, fulfilment of expectations. The system offers education as the basis to acquire a new knowledge and skills. This calls for proper and relevant curricula, an efficient and competent delivery system, an equitable examination system and the mental and physical build up or preparedness of the learners. While the system must make schooling an attractive proposition for all children, what it offers in the school must directly contribute to the growth of higher mental and physical faculties.

Dakar FFA (Framework for Action) underlines that "Quality is at the heart of education and what takes place in classrooms and other learning environments is fundamentally important to the future well-being of children, young people and adults. Quality is one that satisfies basic learning needs and enriches the lives of learners and their overall experience of living. Quality is performance in life, i.e., after the students leave the institution". The concept of quality is indeed complex and value laden. It is hard to find a simple unidimensional measure of quality. Many factors interact in determining quality, e.g., pupils and their background characteristics; teachers, administrators and their skills; schools, their infrastructure and ethos; curricula; and societal expectations. Concern for the quality of primary and elementary education has to be given perhaps the highest priority. There are no readymade or instant remedies for raising quality, nor is it a one-time exercise. It has to be pursued constantly over a period of time.

Quality improvement especially in the context of elementary education has to have a multi-pronged approach covering improvement and development of:

- access and equality;
- school infrastructure and other basic amenities;
- school and classroom environment;
- teacher efficiency, attendance, time disposition;
- course curriculum;
- teaching-learning material (TLM);
- teaching methods, processes and practices;
- community participation; and
- monitoring and evaluation.

2.0 VISION AND AIMS OF ELEMENTARY EDUCATION

Before we address the above issues in greater detail, it is necessary to dwell upon an important issue – the vision and aims of education. The general impression gathered from the discussions at various levels is that there is no clarity about the vision or the basic aims of elementary education. Schooling is often interpreted as education. Educational theory is of the view that education is a normative process of initiating an individual to good life and providing necessary directions. Naturally, the aims of education should determine course curriculum, teaching methods and processes and such other relevant issues. But the aims of education do not constitute the whole vision of education. The vision should cover such aspects as culture, knowledge, character, values of life, etc. and should bring forth historical dichotomies between liberal and vocational education as well as individual and social aims. The reality is that th common expectation from school education is in stark contrast to the idealized visio of education. Education as a means of value-building is given the least importance. Rea knowledge is relegated to a much lower place while 'going ahead' through examination driven teaching, neglect of skills and attitude learning, ranking of children, encouragemen of unhealthy competition, excessive importance of individual achievement at the cost o social growth, and bookish and rote learning have become the common features of the present day school system. It is often not appreciated if some one argues tha development of knowledge depends upon the higher powers of the mind than upon mere memorization and reproduction of information. The schooling processes followed at present are not the real education. Neither the parents nor the society worries over the fact that the schooling processes may give high success rates or percentage of marks but they may not develop the learner's abilities to understand, to think critically, to reason, intuit, observe or analyze. Aesthetic sensibilities, and the powers of imagination and creativity are casualities of the modern day schooling system.

With the recent constitutional amendments (73rd and 74th amendments), the district an lower level bodies of people's representatives (Zila Parishads, Taluka Samitis and Gram Panchayats) have been assigned a far more important role in rural development o which rural education is an indispensable part. This means that the present tendencies to centralize or control the system centrally, have to give way to democratic decentralization in the real sense. So far, this has not happened.

An important requirement of a quality improvement plan is to present a properly conceived vision of education over the next two decades or so. This must not be doled down from the top level. It has to be built up for and at the district and lower levels by the democratic bodies. The vision will not be target-oriented in terms of qualitative progress but will be built around the local felt-needs and will be local culture-specific. The educational system will have to be geared to attain the vision in the prescribed time-limit. In practical terms, quality improvement should become an indispensable part of educational planning.

3.0 QUALITY ASPECT

Let us now look into the other elements that form a 'Quality Development Plan'.

3.1 Access and Equity

In Maharashtra, 90.65 per cent of rural population is served by a primary school within the village. It is indicative of the fact that while almost all the main villages have been well served, the small and very small habitations have been left out. It is also a well-known fact that these small and very small hamlets or 'waadas' are the habitats of the socially and economically weaker sections of the rural community. Every village has caste-wise tiny habitations like 'Mahaar-wada', 'Dhor-wada', 'Bhangi-bastee', 'Pardhi-basti', and so on and so forth. It is these weaker among the weak sections of society that are deprived of educational facilities within their children's walking distances. Norms like minimum population or a teacher for a certain number of students (presently 40 students) will not ork in the case of such tiny habitats. Equity demands that access to schooling facilities ust be extended to every child in the relevant age-group. The local, democratically ected, bodies are best suited for tackling such problems. Unless the access and equity pects are adequately taken care of in the Tenth Plan, the 93rd amendment of the Indian onstitution, as is being processed, making universal and compulsory elementary ducation for children from 6-14 a **fundamental right** will remain on paper only. The first portant step in developing a quality Improvement Plan for elementary education will erefore be to ensure access with equity.

n this context, mention may be made that due to climatic conditions, varying agricultural easons and such other occupational hazards, a formal school with regular hours, fixed urricula, successive promotion system etc. may not be suitable in many areas, especially in small and far-flung habitations. In such areas, non-formal schooling may be encouraged. Even the Sarva Shiksha Abhiyan (SSA) admits Education Guarantee Schemes (EGS) and Alternative Innovation Schemes (AIS) for ensuring access and equity.

.2 Enrolment

here is no doubt that impressive improvement has taken place in school-enrolment in aharashtra. The recorded GER (Gross Enrolment Ratio) at the primary level has been ore than 100 for the last two decades both for boys and girls. The GER exceeds 100 nly when enrolment for a particular level includes children below or above the relevant ge-group. This indicator however conceals the extent of non-enrolment. It is also a fact hat enrolment on the register is inflated for various reasons. In many areas, girls who generally do not attend school are shown on the register to show progress in female education, or to meet the target, or to escape from compulsion laws, or the wrath of inspecting authorities or the higher ups in the department, etc. It is believed that about 15 to 20 percent children do not enroll at all.

In some educationally advanced districts the village community and teachers together conduct a household survey every year to collect the particulars of the school-going-age children in every household and ensure their enrolment and attendance. Such an effort should form part of the quality improvement plan. This is particularly necessary in the backward areas, and in villages which have a large number of habitations (hamlets or 'waadas') attached to them. Without such an effort, education cannot penetrate the tiny human habitations up in the hills and down the vales or in the thick of the forest-spread. Nomadic and de-notified (ex-criminal) tribes need also to be covered in such annual surveys. Special emphasis has to be laid on girl enrolment.

3.3 Infrastructure and other basic amenities

(a) School-building

The importance of a good (PUCCAA) school building with adequate number of rooms and a deep 'Verandah', all well lit and ventilated, cannot be over-emphasized. While a large majority of schools have their own buildings, there are still about 20 per cent schools running in rented buildings. Most of the schools have no compound walls/gates, and are hence used by unauthorized persons various (often dubious) activities. The village community is by and large indiffere In the interest of access, equity and quality, the school must become a place attraction to all the village children irrespective of caste or creed. For this, the fir requirement is to preserve its sanctity. Its premises must not be allowed to b misused. A compound wall with a gate is a must. Secondly, it must have an ope courtyard big enough for common prayer meetings and with a flag-post. Th school should have a name-board, a garden and a children's park, all we maintained.

(b) Classroom

Shortage of classrooms is a phenomenon common to many rural schools. While it may not be practical to expect rapid improvement in this regard – the costs being prohibitive – the fact that multi-grade teaching is not the best way of teaching must not be forgotten.

(c) Toilets/water-closets

Several Commissions/Committees have underlined the need for toilets, separately for boys and girls, and drinking water facilities. However, the ground reality is far from satisfactory. Even in developed districts, these facilities are grossly inadequate; in the backward areas, almost totally wanting. Sanitation is the casualty; the school precincts often stink. This is not at all conducive to the healthy institutional growth, much less to making the school a place of attraction for village children.

3.4 TEACHING-LEARNING MATERIALS

Teaching-learning materials (TLMs) are an important input for effective teaching as well as increasing general knowledge. Thanks to the Operation Blackboard Programme and other such schemes for school improvement implemented in Maharashtra in the mid-nineties, most of the schools have been provided with atleast a minimum quantum of TLMs. These include maps, charts, plastic globes, toys, bird/animal cutouts, games and sports equipment, science/maths kits, tool kits, musical instruments etc. Recent studies have, however, indicated that teachers do not make full use of the TLMs in the classroom. Many students have shown ignorance about the existence or use of some of the TLMs in their schools.

3.5 CURRICULUM

Quality education depends as much on the curriculum content as on the process of teaching-learning. The concept of a standard curriculum for all children may not work, given the heterogeneity and the class and creed based division of the Indian society. The learning needs of the farming class, the manual labour group and the elite and upper strata of the society are wide apart and must, therefore, be catered to separately. School curriculum has to have a culture-specificity too. Moreover, for a large section of rural children elementary education may be the terminal stage while for others it may be a preparatory stage for higher education. These aspects have to be kept in mind while devising curricula for quality education. The use of local language/dialect, particularly in the lower classes, is a must but is often neglected. The language of the textbook can be a real hindrance for rural children.

the present day society, about 25 to 30 per cent children come from families which e capable of providing good education to their wards. It is the remaining children, ostly from rural and urban areas and who form the majority, the poor for whom the ate patronized elementary education is necessary. Class-specific differential curricula the elementary stage deserve consideration. Meaningful curriculum cannot be developed ithout keeping in mind the cultural background and the needs, hopes and aspirations f the weaker sections of the society. Mini-curriculum within the broad school curricula nay be the solution for meeting the needs of specific areas, communities, and environments. An element of field demonstration, observation and experimentation, which is by and large wanting today, needs to be introduced.

Also vitally important is the realization that the rural areas have special needs and sensitivities. This must be catered to in a caring and understanding way. Curriculum planning for rural areas can best be done bottoms upward – by pulling in the inputs from the grass roots that village teachers and rural communities can provide and the priorities that they attribute.

An integrated curriculum espousing 'school knowledge' with 'commonsense knowledge' may considerably reduce resistance to curriculum reform. There is a realization that schools can do better when they do not feel restricted by national directives. Most school education systems around the world advocate the idea of school autonomy, but no serious efforts have been made to operationalize the idea in India.

3.6 EXAMINATION SYSTEM

The present examination system tests the memorization skills or the memory power of the students. This in turn encourages the students to learn by heart the notes dictated in the class or the "guides' available cheaply and easily in the market. Neither the teachers nor the parents realize the danger inherent in this system of examination. 'Rote' learning has become the order of the day, and this is certainly at the cost of creativity. Such students, even if they score high marks in the school examinations, often fail miserably at the competitive examinations later in life and are also not the most efficient workers.

It is necessary that a serious thought be given to developing a proper system of evaluation which will dissuade the students from depending upon the rote learning system, and develop their creative skills. The mad pursuit for high percentage of marks to push up one's career may really harm the holistic growth of the child. His creative, analytical and expression faculties are largely stifled. An open evaluation system, perhaps in the presence of the parents and the members of the community, based on testing the natural talents of children rather than their capacity to "learn by heart" and to "repeat without understanding" would be far more effective at least at the elementary school level. Such good habits built up in childhood would be extremely helpful at the higher education levels also.

3.7 TEACHERS

A teacher is by far the most influential element in the scheme of improving quality education. Around his/her personality revolves the shape and rate of progress. To the school children, who are indeed in the most impressionistic age-group, the teacher is a role-model. Unfortunately for a multiplicity of factors, the lack of commitment being an important one, the school teacher has failed to come up to the expectations. This has severely hindered the process of quality education.

The World Conference on EFA (Jomtien, Thailand, 1990) and the World Forum on EFA (Dakar, 2000) recognized that the new functions of school call for teachers with a variety of skills. A teacher is no longer visualized as someone who just gives lessons, but as someone who has the ability and the capacity to organize, observe, stimulate, assess and foster various learning processes in children and to take remedial measures whenever necessary. A majority of primary teachers after undergoing the prescribed training course, are unable to put into practice specific strategies and functional skills that are presumed to be relevant to the teaching learning process. The process of achieving the operational teacher training objectives and relating them to specific instructional acts and pupils requires constant attention and commitment.

Selection of the right type of personnel for teaching posts is the *sine qua non* for the teaching-learning process. The present teacher selection process is totally vitiated by political interference, corruption, nepotism and racialism. Teacher selection has a vital place in the culture-oriented comprehensive and meaningful curricula. The teacher has to be a local person who enjoys the confidence of the local community and has full knowledge of the local history, geography, cultural traits, local problems, and the aspirations of the local people. There is no denying the fact that most of the rural teachers are daily commuters and, almost as a rule, reach the school late at the start and leave before the closing time. They are never available to their students on week-ends and holidays.

Their interaction with the local community is next to nil, exceptions apart. In such a situation, the need for recruitment of local residents as teachers cannot be overemphasized. This aspect calls for attention on priority. A local person, even if less qualified, would any day be a better primary teacher than a commuter from the taluka or district town, or even from longer distances.

This leads us to the question of teacher-training. Presently graduates who do not get any opening elsewhere join the teacher training courses and accept a teaching position as the last resort. This needs to be reversed by introducing a three-year post-higher secondary or a five-year post-secondary integrated graduation course for teachers. We have now integrated courses in specialized areas like computers, biotechnology, chartered accountancy, law etc. This model can be followed for the teaching profession too, so that only those who are willing to take up teaching as a career and not as a last resort, will seek admission. These courses should be specially designed to improve the teaching learning processes for meeting the new challenges and the new comprehensive and meaningful course curricula. Teacher training needs resurrection from its moribund condition. A three-year or five-year integrated teacher-education programme should aim at improving outlook, helping acquire adequate grasp over subjects and developing teaching skills. Training to be really effective cannot but be comprehensive. The present teacher training programmes tend to be largely academic and do not adequately meet the operational training needs. Not enough emphasis is laid on practical training for the acquisition of new skills.

3.8 ATTENTION TO WEAKER STUDENTS

For various reasons including mental and physical deficiencies, absenteeism, poverty, hunger etc., some children are always found to be weak in studies. While the community has to take various possible measures to reduce, if not totally remove, the causes of the weaknesses of students, the school headmasters also have to ensure that special attention is paid to weak students. Those who obtain less than 50% marks in the MLL tests should be treated as 'weak in studies' and, if necessary, special coaching should be arranged for them free of charge. This experiment has been successfully tried out in some advanced districts in Maharashtra. Such an effort is especially needed in the tribal districts and other socio-economically backward districts.

3.9 HOT-MEALS (MID-DAY MEALS)

Though most unfortunate, it is a fact that children in economically backward communities, especially the tribals, nomadic and denotified tribes, have to often go without food. It is perhaps impossible to expect them to be attentive in the classroom. It is against this background that the Supreme Court has directed the state to provide hot-meals to the primary school children in the poor and backward areas. The mismanagement of this scheme of providing a quantum of food grains to the children is quite well known. More often than not the needy children do not derive any benefit from such mismanaged schemes, and their education is the casualty. No hungry child can be expected to concentrate on learning. How best the Supreme Court's directives could be effectively implemented should be a matter of urgent concern for the authorities as well as the community.

4.0 COMMUNITY INVOLVEMENT

Community involvement in the rural elementary education system will come about only when the community accepts the school as its own institution, to be properly managed and run for its own benefit. This sort of acceptance is by and large missing. That a school's objective is not restricted to providing literacy and numeracy alone but it also includes developing the overall personality and capabilities – physical as well as mental- of the children, needs to be effectively brought home to the community. The concept of holistic education has to be accepted. This calls for a good deal of social-education of the community itself. Its level of conviction that good and wholesome education is an indispensable part of human life needs to be sufficiently raised. There are several ways in which the village community can involve itself in the elementary education system. Some of these are:

- School enrolment
- Health camps
- Infrastructure facilities
- Socio-cultural aspects
- Sports and games
- Excursions
- Local organizations, and
- Teacher-residences

5.0 LEGAL FRAMEWORK

National authorities should take three steps to ensure community involvement in education:

- Provide a legal framework and define precisely the role and contribution of communities.
- Develop an appropriate structure for effective implementation of the legal framework.
- Organize orientation programmes to create awareness among communities.

6.0 MONITORING AND EVALUATION

School inspection through government officials has degenerated into a perfunctory routine and has also given rise to certain undesirable practices. With the important role and functions assigned to the local (elected) bodies through the recent constitutional amendments, an effective local monitoring system should be developed. Aspects like the punctuality and regularity of teachers in holding schools/classes, daily attendance of students, cleanliness of school premises, curbing unauthorized teacher absenteeism, effective use of teaching-learning materials, increasing participation of village community, celebration of national days, organization of various socio-cultural programmes, and the proper use of school contingent grants can best be monitored by the local committees. It will of course be necessary to develop proper tools/processes for monitoring and also build capacities of local bodies for effective monitoring. There can be district, sub-district and village level monitoring set ups, but these should be manned by local people, preferably people's elected representatives.

The present term-end examination system which encourages rote learning at the cost of holistic education also needs to be thoroughly reviewed and reformed. While there can be no single solution to this intricate problem, a student friendly evaluation system devoid of pressures and tensions needs to be developed. Some new learning models encourage an open evaluation system in the presence of parents and the village community which perhaps can be refined to meet area-specific needs. (The Indian Institute of Education has successfully tried such a model in its highly acclaimed action-research programme, PROPEL). Indirect but continuous evaluation system based on class performance, with due weightage for sports, games and cultural activities, can go a long way to remove fear-complexes amongst the children and to build in them self-confidence and self-assurance. Parents would also know the progress of their children in school learning and the connected activities.

7.0 FINANCING QUALITY IMPROVEMENT PLAN

In the foregoing pages several measures have been suggested for quality improvement of elementary education in rural areas. There is no doubt that these measures call for considerable additional financial investment. Not only is there an overall shortage of funds, there are also several competing demands on the slender state finances. But education is an investment in human resource development, and all future development essentially revolves around the quality of the human resource. While a part of the financial requirement can be met by mobilizing and judiciously utilizing local (community) resources, a large part has to come from the state funds. For the last 10 years, intentions of raising the outlay on education to six per cent of the GDP have been declared in various fora, but, actually, it has remained at almost half that level. If the government is serious about quality education, it must ensure that investment on education is raised to six per cent of the GDP before the end of the Tenth Plan. There is also a need to make adjustments in the intrasectoral allocation of funds. Higher (collegiate and university) education including professional and super-speciality education, need no more be considered 'merit goods' for public funding. Similarly, about 20-25 per cent of households are capable of funding their wards' primary and secondary education. It is only the remaining population, mostly rural, semi-urban, or urban poor (slum-dwellers) for whom the constitutional provision of free and compulsory education should vigorously apply in practice. This must not be lost sight of. One is reminded in this context of the American saying that you cannot catch a fish with half a worm.

REFERENCES

1. Annual Tribal Sub-Plan (2001-02), Government of Maharashtra, Tribal Development Dept.
2. Census of India 2001 (Maharashtra) No. 368, Mumbai, Directorate of Census Operations.
3. Chatterjee, Bhaskar., and Qutub, Khan. (2003), 'Basic Education: The Quality Puzzle', IDPAD, Indo-Dutsch Programme on Alternatives in Development, *Vol. I, No.* 1ICSSR, New Delhi.
4. District Primary Education Programme – 7th Annual Report (2000-01): Mumbai: Maharashtra Prathmik Shikshan Parishad.
5. District Primary Education Programme, 1997, Guidelines, DPEP Guidelines, New Delhi: Dept. of Education, MHRD.
6. District Primary Education Programme, Twelfth Joint Review Commission, November 2000, Pune, MSCERT.
7. District Socio-Economic Review and Statistical Abstract – Jalna District, 1982, Mumbai: Directorate of Economics and Statistics, Government of Maharashtra,.
8. District Socio-Economic Review and Statistical Abstract – Jalna District, 1991, Mumbai: Directorate of Economics and Statistics, Government of Maharashtra: 1990-91.
9. District Socio-Economic Review and Statistical Abstract – Jalna District, 2001, Mumbai: Directorate of Economics and Statistics, Government of Maharashtra, 2000-01.
10. District Socio-Economic Review and Statistical Abstract – Nandurbar District, Mumbai: Directorate of Economics and Statistics, Government of Maharashtra, 1999-2000.
11. District Socio-Economic Review and Statistical Abstract – Yavatmal District, Mumbai: Directorate of Economics and Statistics, Government of Maharashtra, 1999-00.
12. Education at a Glance (1991), Directorate of Education, Government of Maharashtra.
13. Education at a Glance (1999-00), Directorate of Education, Government of Maharashtra.
14. India Development Report, 1999-00,Mumbai: IGIDR.
15. Kale, Bhagwan. (1990), *Aamcha Jalna Zilla.* Jalna: Shriket Prakashan..
16. Kulkarni, S. (2002), 'Malnourished Women in Maharashtra'. *Human Scape*, Vol. IX, Issue XII .

17. Maharashtra Data Sheet 2002 Mumbai: Directorate of Census Operations, Maharashtra.
18. Maharashtra Rajya Pathyapustak Nirmiti va Abhyaskram Sanshodhan Mandal, Samanya Bhoogol, 3rd std, Jalna Zilla, 1993, Pune.
19. Maharashtra, 2003, Santosh Dastane, Pune: Dastance & Co.
20. National Human Development Report, New Delhi: Planning Commission, Government of India, 2001.
21. National Sample Survey, (1999-00)
22. Patil, Ramakant. (1999), *Antarang Nandurbar Zillyache.* Shri Prakash Patil: Nandurbar.
23. Sarva Shisksha Abhiyan – Nandurbar District (2000-02) Zilla Parishad, Nandurbar, 2002.
24. Sarva Shisksha Abhiyan – Perspective District Plan – Jalna Zilla Parishad, Jalna, 2002.
25. Sixth All India Survey, 1998, New Delhi, NCERT.
26. State Population Plan (2003-04) Yavantmal: Health Dept.
27. Statistical Information 1991, Jalna district, Jalna: Zilla Akshar Jyoti Samitit.
28. Survey of Maharashtra (2000-01): Directorate of Economics and Statistics, Government of Maharashtra.
29. Survey of Maharashtra, In west and Central India Human Development Report, 2002, New Delhi: National Council of Applied Economic Research.
30. Women Empowerment Process Action Plan (Convergent Community Action) January 2000 – March 2003, Mumbai: UNICEF.
31. Workshop Notes, Regional Workshop on Monitoring and Supervision of Sarva Shiksha Abhiyan, by MHRD, Tata Institute of Social Sciences, Mumbai, 24-26 February, 2003.
32. Zilla Prathamik Shikshan Prakalpa; A Note 2000: Dhule: DPEP Cell.

EFFECTIVE MONITORING, MANAGEMENT AND IMPLEMENTATION OF DISTRICT PRIMARY EDUCATION PROGRAMME

Y. BHASKARACHARYULU

ABSTRACT

The District Primary Education Programme (DPEP) has a tremendous potential in terms of its likely impact on the development of our human resources and mainstreaming all sections of our society in the process of national development in the coming years. However, effective implementation of any educational programme, including a mammoth programme like DPEP, can be enhanced through more systematic monitoring and management. This study based on 30 respondent teachers from 10 schools (rural = urban = 5) under DPEP in Vishakhapatnam district describes areas of low performance and major deficiencies in DPEP and offers suggestions on sixteen aspects of DPEP to enhance its effectiveness through proper monitoring and management.

1.0 INTRODUCTION

It is a well known fact that the development of any region or country mainly depends upon the literacy levels of its population. However, all the developed countries have populations with high literacy levels. Many surveys have revealed that all over the world educated farmers perform better and achieve higher crop production due to the adoption of better farm management techniques, optimal use of technology, mature decision making etc. Studies of industrial and other related activities also reinforce these findings. The lower levels of literacy of our population is one of the major factors that restrict the rate and level of development of our country. According to the 2001 census, the aggregate literacy of the population of India (excluding children below 7 years) is about 65 per cent. The Human Resource Development Report of 2003 indicates that 42 per cent of these (above 15 years of age) are illiterates. This scenario has to be changed if India is to progress as a nation.

In view of the situation prevailing in the developing and the under-developed countries, the World Education Conference at Jometien, 1990 passed a resolution to provide Education for All by 2000 throughout the world. Later, the 2nd World Education Conference of Delhi, 2000 extended the time schedule to provide education to all by 2010. Further, the conference recommended that India should act effectively to achieve the target and also that it should take the help of foreign countries in this respect. As a consequence, considerable investment under O.B.B., A.P.E.S, and D.P.E.S. has been made in India for effective implementation of education programmes since 1990. Recently, the Human Resource Development Ministry launched the Sarva Siksha Abhiyan (SSA) under the 9th Five Year Plan which is one of the biggest efforts made by any single country for achieving Universalization of Elementary Education. Huge funds have been earmarked for this programme.

At present, the major challenge faced in this country in the education sector is that still more than 35 million of Indian children do not attend school. Poor quality of elementary education, shortage of teachers, high drop out rates (40.25 %), high number of un-enrolled girls in the 6-11 years age group and another 16 million girls in 11-14 years age group are the other challenges that India faces today. At this juncture, effective monitoring and the use of modern managerial approaches are essential to increase the effectiveness of the District Primary Education Programme (DPEP).

2.0 DESIGN OF THE STUDY

In view of these, an attempt was made through this study to assess the implementation of the DPEP and other programmes in order to trace the problems, deficiencies and bottlenecks that thwart its effectiveness. This study also focuses on the various aspects of implementation as well as formulation of approaches for the resolution of the problems. It also stresses the need for monitoring, management and evaluation systems to appraise the programmes under the DPEP at grass root levels.

The school sample of this study comprised 10 schools (urban = 5, rural = 5) of Visakhapatnam. The respondent sample consisted on 30 teachers (3 from each school) selected randomly for collection of data. The researcher visited the sample schools and interviewed the respondents for collection of data with the help of a structured interview. The schedule helped him elicit information on the interventions in the DPEP and the other related aspects from the respondents. The researcher took up the problem areas as revealed by the respondents and analyzed these in detail.

3.0 OBJECTIVES OF THE DISTRICT PRIMARY EDUCATION PROGRAMME

The guidelines for the District Primary Education Programme (DPEP) were formulated in April 1993 and the programme was launched on November 8, 1994. The major objectives of the programme were as follows:

- Creating of universal access to primary education through formal schools or their alternatives.
- Reducing the overall drop out rate at primary level to less than 10 per cent.
- Raising the achievement levels by 25 per cent points over and above the measured baseline levels.
- Minimizing disparities of all types to less than 5 per cent.

The execution of this programme, i.e., the DPEP was mainly through village education committees (VECs), parent-teacher associations (PTAs), women's groups (WGs) and non-governmental organizations (NGOs).

4.0 PLANNING IN DPEP

Microplanning exercises were taken up under the DPEP at the micro level. Through these mandal level and district level plans were designed basing on the needs of the beneficiary community. The district plans indicated the existing status, gaps, strategies for filling up gaps, achievement, targets, budget allocation etc. Further, separate sub-plans were prepared covering the core areas in the DPEP especially the access, enrolment, quality, equity, capacity building etc. According to the plans, the DPEP was implemented at the habitation level. In Andhra Pradesh, the School Education Act (Community participation) was formulated in 1998 for effective implementation of the DPEP and SSA programmes. Since its inception, the DPEP has been implemented quite effectively. However, through this study some deficiencies and problems were identified, as revealed by the respondents, and these were subsequently analyzed in detail by the investigator.

The major deficiencies of the DPEP pointed out by the respondents were:
- Lack of adequate schools
- Non-availability of proper school buildings
- Lack of blackboards
- Lack of adequate number of teachers
- Ineffective managerial system
- Absence of mobilization
- Poor functioning of non-governmental organizations (NGOs)
- Low performance and ineffective functioning of education committees
- Lack of participation of parental associations

Low performance on the various activities of the DPEP was observed on the following aspects:
- Insufficient number of schools.
- Long distance to walk to school in rural areas.
- Negative parental attitudes.
- Household chores to be attended to by the children.
- Traditional and social customs.
- Low incidence of teachers in undertaking involuntary work (due to their involvement in private business and other activities).
- Apathetic attitude of teachers.
- Corporal punishment to students.
- Lack of adequate teaching-learning materials.
- Parental migration.
- Absence of proper child care.
- Problems faced by the parents of the un-enrolled and drop out children.

It is evident from the above data that the present performance of the DPEP and, by implication, its effective implementation are not upto the expected level. If this continues uncheked, it will have disastrous impact and contribute to non-attainment of various targets of the programme. At this juncture, the primary requirement is to enhance the effectiveness of the DPEP through the use of more effective strategies, approaches and monitoring and managerial systems. In order to make good these shortcomings, the researcher has suggested some feasible strategies for more effective implementation of the DPEP. Their details are presented in para 5.0.

5.0 SUGGESTIONS FOR EFFECTIVE IMPLEMENTATION OF THE DPEP

These suggestions (5.1 – 5.16) are based on the deficiencies related to effective implementation of the DPEP that were revealed by data analysis. The following suggestions, each with a specific focus, can help enhance effective implementation of the DPEP through its proper monitoring and evaluation:

5.1 Creation of Access to Primary Education Facilities (Village-wise)

The spatial variations in village-wise availability of educational facilities have not been identified effectively and therefore remote villages and villages in the backward regions have not been covered properly by the DPEP. Hence, this study attempted to measure the access of education facilities habitation-wise and village-wise. Further, this study identified the villages not having primary education facilities in backward and tribal pockets. Hence, this study recommends that priority be given to facilities for education in the identified villages in the respective regions. This measure will significantly help fulfil the objectives of SSA, i.e., spread of primary education facilities to every village.

5. 2 Identification of Villages with Higher Level of Illiteracy

Improvement in villages with higher level of illiteracy has been very slow and due to this, the people of these villages continue to be illiterate. Hence, it is suggested that villages with higher level of illiteracy in all regions be identified and efforts be made through the DPEP to reduce illiteracy in these villages.

5.3 Fixation of Targets for the DPEP

Targets fixed under the DPEP are not adequate. We need to formulate these targets at the village level. Hence, this study suggests that the targets should be fixed at the village level as well as the school level. Further, to achieve the objectives of the DPEP, it is suggested that this fixation of targets should be relatively higher in the villages with higher illiteracy. This measure will be significantly helpful in eradicating the spatial imbalances and also in improving attainment of the targets at the grassroot levels.

5.4 Preparation of Effective Perspective Plan for the Implementation of the DPEP

The perspective plan for the DPEP is prepared at the district level with the help of the mandal and village level teams. As a result, some problems, e.g., enrolment are identified but not at the village level. Hence, it is suggested that target fixation for the achievement of enrolment etc., should be worked out village-wise. This measure will be significantly helpful in implementing and also in evaluating the programmes at the village level.

5.5 Identification of Out-of-School Children

Accurate information pertaining to the out-of-school children is essential for fixation of targets and for effective implementation of the DPEP. Further, based on this information, the development of infra-structural facilities and financial allocations have also to be worked out. In view of these, it is suggested that identity cards be issued for out-of-school children with their addresses, age, sex and other related information written/printed on them along with their photographs. This entire information should be computerized. This measure will be significantly helpful in authenticating and saving information regarding the out-of-school children. Alternative strategies, viz., Residential Bridge Courses, Non-Residential Bridge Courses and Alternative school need to be provided, where necessary, for the benefit of the out-of-school children.

5.6 Effective Implementation of Total Literacy Campaigns

This study suggests that total literacy campaigns for effective mobilization of and motivation to the villagers based on the problems faced by them be designed. This measure will be significantly helpful in planning mobilization/ motivation activities at the village level.

5.7 Provision of Adequate Infra-structural Facilities

At present, provisions for infra-structural facilities, such as school buildings, teachers, blackboards, additional institutions and other related facilities are worked out at the district level. Through this scheme many inputs have been supplemented but these too are inadequate. Hence, it is suggested that, based on this information, infra-structural facilities and additional facilities be provided according to the requirement. Moreover, the targets of the DPEP need to be attained village-wise. This measure will be significantly helpful in providing adequate facilities in almost all villages based proportionately on their demand and in a more equitable measure.

5.8 Effective Functioning of Participatory Committees and Organizations

The functioning of school committees and other organizations at the village level is below expectations as judged by motivation and mobilization of the villagers. Hence, it is suggested that greater participation of villagers is pursued through motivation and mobilization camps as and when organized by the DPEP and the other agencies, e.g., NGOs.

5.9 Achievement of 100% Enrolment

At present, the achievement in terms of enrolment is evaluated at macro-level, i.e., block or district level, even when some problems are identified at the village level in proper evaluation of enrolment and achievement. Hence it is suggested on the basis of this study that enrolment and achievement need to be evaluated school-wise and village-wise. For improving enrolment, it is suggested that institutions with lower enrolment at the village level be identified and the factors responsible for lower enrolment be ascertained. Besides, it is suggested that better remedial measures for the execution of plans be formulated. These measures will be significantly helpful for the improvement of enrolment and in achieving concerned targets in a more effective manner.

5.10 Reduction of Drop Outs

On the whole, the extent of drop outs is relatively high in backward regions. Therefore, reduction and, if possible, prevention of drop outs is very important because the success of the DPEP mainly depends upon it. The finding of this study suggests that education committees, volunteers and teachers need to prepare the lists of absentee children in every school and every village and adopt special measures for their enrolment. If the present level of drop outs continues unchecked, it may be very difficult to check it later on. Therefore, remedial measures, e.g., Residential Bridge Courses, Non Residential

16144

Bridge Courses and Alternative schools need to be taken to overcome this problem of drop outs.

5.11 Greater Collaboration with NGOs

At present, the role of NGOs in the implementation of the DPEP is not quite satisfactory. The results of this study suggest that taking the role of NGOs like Rama Krishna Mission, Satya Sai Seva Samithees, Lions and Rotary clubs and Christian Missionaries working voluntarily, as exemplary, greater utilization of the services of other NGOs may be insisted upon for motivation and mobilization of children and parents. This collaboration with other NGOs should be put in place in every village and utilized in a systematic manner for the effective implementation of the DPEP programmes.

5.12 Strengthening of School Effectiveness

The provision of adequate necessary facilities helps schools in creating a congenial atmosphere. This is extremely important for attracting children to the school and retaining them. The findings of this study indicate that systematic evaluation of the available facilities in relation to requirements, problems faced, performance etc. can considerably enhance school effectiveness. The DPEP authorities should concentrate on providing all necessary facilities to schools to enable them to create supportive atmosphere and thereby ensure more effective functioning of schools.

5.13 Improvement of Girls' Enrolment

The number of un-enrolled girls is quite high in almost all the villages. Consequently, full success of the DPEP would mainly depend upon the extent to which girls are enrolled in schools. Keeping this in view, the results of this study underline the importance of conducting special enrolment drives for girls, organizing mobilization and motivation programmes for identification of un-enrolled girls in every village, and making adequate arrangements for helping the un-enrolled girls join schools. Similarly, the drop out rate of girls is higher than that of boys in almost all the schools. It is therefore recommended that all absentee girls in every school be motivated to attend the school regularly. Such effort should be made on long term basis and in a sustained manner village-wise and school-wise. For this purpose, the DPEP functionaries may seek the help of Anganvadi workers, Mahila Mandals, NGOs, and parent-teacher associations. These measures can be significantly helpful in improving girls' enrolment.

5.14 Conduct of Extra-Curricular Activities in Schools

Involvement of children in extra-curricular activities helps ensure their greater retention at school and it further creates better relationship between students and their teachers. This can be true of schools under the DPEP as well. But the conduct of extra-curricular activities in village schools is rather poor. It is therefore suggested that a well articulated programme of extra-curricular activities may be organized and executed in all the schools under the DPEP for ensuring greater involvement of learners in their school programmes, especially in village schools. This measure can also promote more positive learner attitude towards schooling.

.15 Development of Pre-School Activities

re-school activities promote school readiness among children. Under the DPEP, many CE centres have been established and these centres cater to the needs of village children as well. Under ICDS also Angarwadi centres were established for attaining the objectives of the DPEP/SSA. The results of this study suggest that pre-school activities need to be organized for all school going children in every village. Nursery, LKG, UKG and other related courses may therfore be introduced under the pre-school education programme. The services of Anganwadis, Mahila Mandals and NGOs can be utilized to make this a reality. This measure will be significantly useful in creating such habits among children that strongly support their schooling and in turn improve their retention status and minimize drop out rate at the grassroot level.

5.16 Identification of Child Labour

The un-enrolled and drop out children mostly drift into the child labour sector. Special programmes therefore need to be chalked out exclusively for the benefit of children engaged in child labour. Programmes like RBCs, NRBCs need to be established at the village level. These committees and NGOs can be given a prominent role in the admission of children from the child labour sector in schools; they can also take up follow-up activities for mainstreaming these children.

6.0 CONCLUSION

In the end, it can be concluded that even though the DPEP is effectively implementing its programmes at the grassroot level in Vishakhapatnam district according to its perspective planning, there still are some major deficiencies as identified through this study. These deficiencies are relatively more concerned with the effectiveness of the school system. Suggestions made by the researcher on the basis of the findings of this study can go a long way in ensuring more effective implementation of the DPEP/SSA programme. The results yielded by this study can provide useful avenues for further research. Educational planners and concerned authorities may consider the suggestions made in this paper. These suggestions can be prioritized and implemented at the grassroot level to provide more effective schooling, for rural children in particular.

REFERENCES

1. Bhaskararao, Digumarti. (1998), *District Primary Education Programme.* New Delhi: Discovery Publishing House.
2. Budholia, O.P. (2002), 'Universalization of Elementary Education: A Challenge For the Third Millennium'. *Miracle of Teaching*, Vol II, No2.
3. Govinda, R. (2003), 'Providing Elementary Education For All: Challenges To Teacher Education'. *Miracle of Teaching*, Vol III, No2
4. Kumar, Lalit. (2003), 'Using Learner's Nature and Innate Tendencies as Basis for Teaching-Learning Process'. *The Primary Teacher.* 28(2).
5. *Perspective Plan -Visakhapatnam District*, SSA / DPEP, 2001- 2010.
6. Shukla, Shraddha. (2003), 'Strengthening Primary Education: The Heart of The System', *Miracle of Teaching*, Vol III, No. 2.

ON-THE-JOB SUPPORT FOR ELEMENTARY TEACHERS AND TEACHER EDUCATORS

MANJU RAJORIYA

ABSTRACT

Elementary schools, especially those in rural areas, have poor infrastructure and high pupil-teacher ratio. Most teachers in these schools teach without proper planning and teaching aids. Absence of activities including those under work experience considerably demotivates students. On-the-job support inputs under this study were provided to teachers to make their classroom behaviour supportive of students' learning, decrease/minimize teachers' frustration, make school BRCC and JSK more attractive and promote planned use of teaching aids. The researcher describes in this paper the various inputs provided to teachers. A two-day workshop was the highlight of these inputs. The paper concludes with a summary description of lessons learnt from these actions.

1.0 INTRODUCTION

It is often seen that most students as passive learners in elementary schools receive only bookish knowledge. During monitoring of classroom activities in these schools, it has been found that

- most elementary schools have widely differing teacher-pupil ratio. In rural areas, it is not unusual to find that some elementary schools have just 2-3 teachers while most schools in urban areas have 5-11 teachers. A high pupil-teacher ratio makes it near impossible for teachers to provide individual attention to students;
- the teachers teach without proper planning and in a routine, mechanical manner;
- the teachers teach the same group of students from standards I – IV or V; this system deprives the students of learning from other teachers and of getting used to different styles of teaching;
- the teachers are clueless about how to use teacher contingency; it is mostly the headmaster/headmistress who decides what amount is to be spent and on what;
- the teachers are not interested in preparing or procuring teaching aids to make their teaching interesting for students;
- the teachers often strike fear in their students; consequently, the students hardly ever have the courage to ask a question of their teacher(s); this increases students' anxiety and makes a mockery of education in democracy; and
- the absence of work experience or activities makes the school day monotonous and dull; students' motivation is consequently adversely affected.

In view of these observations, it was felt that

- classroom behaviour of teachers needs to be changed and made more supportive of learning;
- the frustration often experienced by teachers and also by coordinators due to routine responses of the teachers needs to be removed as far as possible;

- the schools, BRCCs and JSKs need to be made more attractive so that they may attain their objectives;
- the teachers need to be familiarized with the procedure for using contingency; and
- planned use of teaching aids by teachers needs to be promoted.

2. ACTION TAKEN

The teachers were asked to analyse each lesson and change it into question-answer form and use it for interactive classroom teaching.

- The teachers were advised to list the material they thought was necessary for developing students' understanding of concepts and use these for classroom teaching.
- The teachers were encouraged to prepare teaching aids and to plan how to use these before engaging their classes.
- The H.M.s were requested to monitor how far the teachers carried out these activities regularly.
- Jan Shikshakas, BRCs, BACs and OICs were asked to interact with teachers and appreciate the initiatives taken by them.

3.0 IMPACT

- The teachers carried out these activities and teaching through reading of the text book became much less frequent.
- The teachers in three schools based their teaching on teaching learning aids; teachers in other schools started using these aids.

Since India has launched Sarva Shiksha Abhiyan in order to achieve universal enrolment of children upto 14 years of age, it is essential that teachers be trained to teach heterogenous classes and to take care of learners' differences. BRCs and JSs were therefore asked to provide on-the job support to teachers and develop their competencies in respect of the following:

- Preparing time table according to the students' needs, characteristics and problems.
- Developing teaching aids and planning how these can be used more effectively.
- Ensuring better class management for optimal use of available time and resources.
- Carrying out evaluational analysis.
- Diagnosing students' weakness and gaps in learning.
- Conducting remedial teaching classes.
- Sharing ideas, experiences and problems with colleagues.
- Planning and organizing activities other than classroom teaching.

BRCs and JSs provided on-the-job support and interventions to teachers as planned. A two-day workshop on using low or zero cost teaching aids for teaching science and maths organized in a non-DPEP district had immense impact on participants, both teachers and selected students. During this workshop, the students were asked to collect leaves, sticks, spokes and thermocol pieces. The sticks were tied up in bundles. The students and the participant teachers were curious to know as to what use these items would be put. They were amazed when a set of colourful abacuses was produced with these seemingly worthless spokes and thermocol pieces. By the time this task was finished, all the students were ready to produce something by themselves. Thei enthusiasm was constructively channelised in preparing bundles of 10 sticks and tyin up ten such bundles to prepare a bundle of 100 sticks. Like this, they prepared bundle of 1000 sticks. They were thrilled to learn that the abacuses and the bundles of 10,10 and 1000 sticks would be used for teaching numeracy to illiterate children.

By now, what initially began as a teaching workshop had been transformed into an exciting learning experience for all, including the participant teachers. During the second round, the resource persons organized participatory discussions on different types of leaves collected by the students, their structure and other characteristics and why these leaves differed from each other in their shape and structure. These were followed by a practical demonstration on how to set up a herbarium in the school.

This two-day workshop boosted the teachers' confidence to perform effectively with various learner groups and in different situations. A noteworthy feature of the workshop was a session conducted by a participant teacher on teaching English structures.

4.0 LESSONS LEARNT FROM THE WORKSHOP AND OTHER INPUTS

During the discussion-based concluding session of the two-day workshop organized for participant teachers, it was felt and acknowledged that

- healthy learning-oriented classroom and school atmosphere can be achieved through planned collective effort and teachers' attitude plays a crucial role in it;
- formal and internal training can benefit all teachers and help them acquire new skills and competencies and enhance those already acquired;
- the use of teaching-learning aids and activities can enthuse students in a mos effective manner; and
- periodical monitoring of teachers' performance and on-the-job support can make teachers more effective.

It was further highlighted during the concluding session that a five-step plan and its implementation can transform an elementary school from a boring place into an activ centre of learning. These steps are as under:

I **Plan** your teaching in terms of what you want to teach, to whom and how during th time available to you.

II **Share** your knowledge, teaching resources including teaching-learning aids and your experiences with your colleagues and teachers in the neighboring schools.

III **Create** opportunities for students to learn in groups under teachers' guidance as well as independently as a group.

IV **Evaluate** your performance and **experiment** how you could have taught the same concepts in different ways and, may be, a little more effectively.

V **Organize** competitions for students as well as teachers and participate in them to enhance your learning.

5

"BRIDGING THE GAP THROUGH BRIDGE COURSES" -AN APPRAISAL

ANIL SHUKLA

ABSTRACT

Education is the right of all children and the obligation of all governments. Despite several efforts by the government and various NGOs, the challenge of Education For All is yet to be met. Motivated teachers, supporting society, infrastructual facilities, joyful and participative learning methods and innovative practices are the key inputs for this cause. International collaborations are making hard efforts to make the dream of UPE a reality in India. The Janshala programme was started with the help of five UN agencies, viz., UNDP, UNICEF, UNESCO; ILO and UNFPA and the Government of India in nine states of our country. In U.P., Lucknow district was taken as the coverage area. A unique initiative was taken byJanshala for the primary education of the children of Lucknow city who were not enrolled in any school. This intervention was called Bridge Course. An intensive survey was done to locate the non-school going children. Temporary schools (Learning Centres) were started for these students in their nearby localities. The parateachers associated with these centres were given the title 'Balsakhis'. These Balsakhis were given the responsibilities of conducting house-to-house survey to enroll the students at the centre, taking up the teaching for one session, and again enrolling these students in the nearby government schools in different standards depending upon their performance. These Balsakhis were given temporary appointment for one session in their respective schools so that these students could adjust in the schools and the problem of dropout could be minimized. This study was undertaken to assess the success of this practice and to examine the factors, discouraging as well as motivating, that impact the scheme. The results were reported under three additional factors besides the discouraging and motivating factors, viz., enrolment and retention, academic performance and social dimensions.

1.0 INTRODUCTION

In every child who comes into the world, hopes and dreams of the human race are born anew. Children are the bearers of our common future – a future that is in our hands today as never before. For the mankind today has the knowledge, the resources and the legal imperatives to give every child the best possible start in life, in the family environment, in the school that offers love, care and the nurturing that children need to grow up, to learn and to develop to their fullest (Global Movements for Children).

In the World Summit for Children (1990) it was accepted that as a member of human family, we all are accountable for the dignity and rights of the children. Thus, the important points, which deserve the consideration of all are: leave no child out, give priority to the principal "children first, care for every child" stop harming and exploiting children, listen to children, protect the earth for children and educate every child.

Education is the basic right of all children and the obligation of all governments. For overcoming all the problems, education acts as a boon. It is the basic human right that frees the spirit from the chains of ignorance. It is the key to the fulfilment of other human rights too and it is the essential pre-requisite for equality, dignity and lasting peace

Julius Nyerere, a former school teacher who became the first president of Tanzania, explains education as 'not a way of escaping the country's poverty, but a way of fighting it out'. To fight poverty, 'Invest in children' has been a very popular slogan. Thus, ensuring the right of education to the children is a matter of economic sense, morality and justice. Ayyar (1996) argues that returns on primary education are higher in those countries where basic education is not a fundamental right. For ensuring morality and justice in people, nobody can undermine the role of education.

There is no doubt that positive correlation exists between education and mortality. As mentioned in one report (1999) a 10 percentage point increase in girls' primary enrolment can be expected to decrease infant mortality by 4.1 deaths per thousand and a similar rise in girls' secondary enrolment by another 5.6 deaths per thousand. A very interesting relationship is being observed (World Children Report, 1999) between education and fertility rates as well as decrease in maternal deaths. In Brazil, illiterate women have an average of 6.5 children , whereas those with secondary education have only 2.5 children. Even in Kerala, due to higher rate of education, the infant mortality rate is the lowest in the entire developing world and the fertility rate is the lowest among all Indian states.

On the individual-wide scale, the denial of right to education decreases people's capacity to work productively and on the society-wide scale, it harms the cause of democracy and social progress. Despite these truths, there are about 130 million (21%) children out of the total of 625 million of primary school age in developing countries who do not attend schools. Let us also have a look at the region-wise primary school enrolment and its status to make the picture clearer.

Table 1: Percentage of the Enrolled Primary School Age Children

Region	**Initial Grade**	**Reaching Grade**
Sub-Saharan Africa	57	67
South Asia	68	59
Middle East and North Africa	81	91
Latin America and Caribbean	92	74
Central and Eastern Europe & Baltic States	94	N.A.
East Asia & Pacific	96	90
Industrialized countries	98	99

Source: *The State of World's Children (1999) UNICEF, New York.*

Education is the heart of all development. I.W. Wolfensohn, President, the World Bank Group, (2000) rightly confessed at World Education Forum, Dakar, that no country has succeeded without educating its people, and education acts as a key to sustaining growth and reducing poverty. He emphasized that economic crisis, political and economic transition, the widening of the digital divide, civil conflicts, natural disasters and rapid population growth were the main reasons for the slow progress of education. Despite all these, some new initiatives for attaining the goal of universal primary education like Fundescola programme in Brazil, Education Enhancement programme in Egypt, Universal Primary Education programme in Uganda, Expenditure Reform Programme in Mauritania and the DPEP and Janshala programmes in India were highly appreciated in Senegal (2000). This task is very huge and there are a number of social, political, economic and individual constraints. Thus, 'Education for All' will be impossible to achieve if there is a lack of external resources. A few international collaborative milestones for education may be referred to here. The Universal Declaration of Human Rights (1948) emphasized education as a basic right, the Declaration on the Rights of the Child (1959) adopted education as the right of every child, the World Regional Conference on Education (1960-66) prepared time bound regional goals for access of primary education to all, the International Convention on the Elimination of All Forms of Racial Discrimination (1969) proclaimed the right to education regardless of race or ethnicity. The International Covenant on Economic, Social and Cultural Rights (1976), the International Year of the Child (1979), Primary Enrolment Doubles in Latin America and Asia and Triples in Africa (1980), the convention on the Elimination of all forms of Discrimination against Women (1981), the Third World Conference on Women (1985), the World Conference on Education for all (1990), the E-9 Education Summit (1993), the The World Conference on Special Needs Education: Access and Equality (1994), the International Conference on Population and Development (1994), the World Summit for Social Development (1995), the Fourth World Conference on Women (1995), the Mid-decade meeting of the International Consultative Forum on Education for All (1996), the International Conference on Child Labour (1997), the World Education Forum (2000) motivated the whole world to place education at the core of all development.

Despite all these efforts, almost forty per cent of the Indian population continues to be illiterate and two-thirds of women are illiterate (Source: Advocacy for Primary Education). From the view point of it literacy and the number of non-school going children, we are number one in the world. In the age group of 6-14, at least 6 crore children do not go to school in our country. 21.87% non-school going children of the world are in India and in the age group of 15-35, nearly 13 crore are illiterate here, out of which 62% are women (Ayyar, 1996). Though in U.P., there has been significant progress in education, yet it continues to be one of the most backward states of the country. About 10 million children in the age group 6 to 14 do not attend elementary school. Of those who do, a large number assessed at about 50% drop out before completing class VIII. According to government records, 2002 literacy rate in U.P. is 57.36%, out of which the female literacy rate is only 42.98%.

In this information driven century, no state simply can afford the loss of so much human capital. To capitalize on the human capital, different types of innovative schemes have been started to ensure higher enrolment and to promote retention. The Bridge Course by Janshala is one of the efforts in this regard.

2.0 ABOUT JANSHALA

For the Universalization of primary education in India, five UN agencies, viz., the UNDP, the UNICEF, the UNESCO, the ILO and the UNFPA collaborated with the Government of India to provide financial and technical support for a community-based primary education programme, called the Janshala programme. Janshala means 'commu ty school'. For the successful execution of this programme, the UNDP, the UNICEF d the UNFPA together committed themselves to a contribution of US $ 20 million as gr t, the UNESCO and the ILO offered technical support in the field of multigrade teach g, teacher training, and developing strategies for the mainstreaming of non-school g g children. The project period was five years with the total project outlay of Rs. 1 1 million. The project aimed at enhancing and sustaining community participation n effective school management, improving the performance of teachers in the use of interactive, child-centred and gender sensitive methods of teaching, and removing so al constraints which affect the attendance and performance of children.

3.0 RELEVANCE OF THE STUDY

Education is the essence of the progress and prosperity of the state as well as tha of the individual. But in U.P., the picture is not quite rosy as far as the scenario of educat n is concerned. In Lucknow, the capital of U.P., which has the population of 3.6 milli , nearly 40% women and 30% men are illiterate. There is yet another irony. While m y programmes have been launched to eradicate illiteracy in rural areas, the schen s dedicated to urban areas for the same purpose are negligible. In view of this anom , a unique initiative named, Bridge Course was taken by Janshala. Under this programr , with the help of NGOs (BETI and PRATHAM), Janshala tries to locate the 'non-sch l going children' of slums and arranges bridge courses for them in their nearby localit s with the help of facilitators called 'Balsakhis'. The next step of this programme is qu significant. After the bridge course of stipulated time, all these students are enrolled the nearby government schools in different classes according to their performance ar interest. To ensure the retention of these students, the Balsakhis are given appointment in the schools where they have already enrolled their bridge course students.

Sincere efforts were made to keep these students on the right track. However, it is necessary for the success of any such programme to find out the ground reality and use the results as feedback. What is the status of enrolment, retention and performance of the students covered under this scheme? What are the motivating as well as discouraging factors for retention of these students? Such questions need an empirical study. This study was undertaken so that the motivating factors can be utilized to facilitate primary schooling and the factors that discourage can be eliminated to minimize dropout. In this background, the study was undertaken with the following objectives:

4.0 OBJECTIVES

1. To find out the enrolment status of bridge course students studying in standards I to V.
2. To find out the discouraging factors from dropouts, parents, teachers and Bal Sakhis.
3. To identify the facilitating factors for completing their primary education.
4. To assess the performance of bridge course students enrolled in different classes in academic areas as well as on social dimensions.
5. To suggest retention strategies to make the bridge course more effective.

5.0 METHODOLOGY

For Objective 1, documental study, inspection of school attendance registers and actual observation of the school were carried out. For Objectives 2 and 3, an interview schedule was prepared. For Objective 4, assessment tests were developed and used. The help of educational experts was solicited to attain Objective 5.

6.0 PLANNING AND EXECUTION

After careful consideration of the aforesaid tools, a list of schools was taken from Janshala, where the students of bridge course were enrolled. The personnel of Janshala and NGOs Beti and Pratham, who were involved with the programme, were contacted to understand the spirit, planning and execution of this scheme. Fifty primary schools of urban area were randomly selected to collect the data. Teachers and Balsakhis associated with these schools were contacted/interviewed to get their views. Noted educational experts were interviewed for further planning on the basis of the collected information.

7.0 RESULTS

The results are presented in terms of five dimensions that affect student enrolment and retention; these are (a) enrolment and retention, (b) academic performance, (c) social dimensions, (d) discouraging factors, and (e) motivating factors.

7.1 Enrolment and Retention

- Out of these 50 schools, maximum enrolment was found in standards I and II at the initial level. Only 21 and 10 students were found enrolled in standards III and IV respectively.
- The total enrolment as per the school record and as reported by teachers was 1718, out of which 1685 students were found enrolled in standards I and II.
- Enrolment reported to Janshala office was quite high but in the school register, it was found to be quite low. Thus, it can be said that there was discrepancy in the number reported to the office and the number of students actually enrolled in the school register.
- There was discrepancy in the number of Balsakhis. Their number in the record was different from that in the reports of the school teachers. Besides, discrepancies in the names of Balsakhis were found. According to the school records, 107 Balsakhis were actually involved in this programme.
- Nearly 60% Balsakhis who were actually coming to schools were appreciated by teachers. Around 18% Balsakhis never visited schools after enrolment. Students also appreciated the commitment and care shown by Balsakhis.
- Out of the total enrolment, i.e., 1718, the number of dropouts was found to be 1163 (according to teachers' reports and records). This trend shows that the percentage of dropout is nearly 68.
- Out of the enrolled 1718 students under the bridge course, the number of students belonging to the general category was found minimal. The number of minority group students, especially girls, was quite high.

- Generally in the schools, there is no provision of pass-fail in initial standards, i.e., I and II. Thus, those students who attended the schools were automatically promoted to the next standard.
- In 20% of the school sample, retention percentage was found to be zero.
- In nearly 40% schools, records were not maintained properly and they were not helpful for this evaluative study.
- Out of the reported enrolment of 1718 (by school records and teacher reports), only 110 students were actually found in the schools. This may be because during the days of data collection the weather was not clear (it rained).
- In 10% schools, the retention percentage was found to be more than 75.
- In general, as far as the retention and progression of the bridge course students is concerned, the picture is indeed very grim and it seems that the efforts have not yielded expected results.

7.2 Academic Performance

- The performance of students differed from school to school. In some schools the teachers were only too happy and satisfied with these students, while in others, their opinion was just the opposite.
- It was notable that the performance of standard II students was quite encouraging when compared with that of the normal stream students. Students enrolled in standards III and IV were found to be a bit more conscious and uncomfortable.
- The performance of girl students was found to be far better than that of boy students.
- In those schools where teachers were alert, the students were able to learn numbers up to 100, and tables up to 5 and the standard II students were able to read and write the alphabet.
- In maths, the standard II students were able to do addition and subtraction. They were a little uneasy in doing multiplication and division.
- The academic performance of these students was found to be positively correlated with the standard of the school.
- The level of Balsakhis motivation was also found to be positively correlated with the students' performance.

7.3 Social Dimensions

- Teachers reported that at the entry level, these students were facing difficulty in adjustment with other students because of their age, routine activities and family background.
- The student enrolled in standard I adjusted more quickly as compared to those in other standards.
- The students enrolled in standards II and III were found to be more aggressive and ready to fight or to leave the school.
- In those schools where uniform was compulsory (like the Railway School, Primary school, Hasanpuriya), students were found to be more confident. Retention rate in these schools was also quite high.
- As far as personal health care was concerned, they were found to be almost at par with other students who were not upto the mark. Thus, a lot has to be done with the help of teachers and parents on this front.

- The Bridge Course students were observed to be equally keen in saying 'Good morning' and in paying respect to the visitors.
- Most of the interviewed students expressed happiness and promised to continue their education.

7.4 Discouraging Factors

- Most primary schools teachers did not consider these students as their responsibility. In their opinion, they were the responsibility of Balsakhis.
- Most of the interviewed Balsakhis were found eager to work with the children, but they were unhappy because their salary for the past 3 or 4 months was not paid to them.
- In some schools, even Balsakhis played a negative role and told the students that their schooling was over as the tenure of these Balsakhis was over.
- In some areas, privately managed schools were also found responsible for the exit of these students from government schools so that they could increase the enrolment in their own schools.
- The infrastructure of the rented schools was in a very bad shape, so much so that in some areas even government school teachers were not eager to enroll Bridge Course students in the schools. Consequently, students were enrolled in those schools which were too far from their places of stay.
- The quota system of enrolment played a very negative role. Informally, every Balsakhis was given the target of 30 students. For the sake of meeting the target, some students were enrolled but from the very next day no such student turned up in some schools.
- The multi-grade system of teaching was not found to be working effectively in the real situation.
- There was a lot of variation in the students' age. In one class, students were 3 years to 14 years old. With such huge age gap, students were experiencing problems in adjustment.
- The students of bridge courses were not used to studying in formal classes because, at the initial stage, they were taught through play, drama and games.
- In some schools, enrolment was done in the months of March and April. After enrolment, there was the long summer vacation because of which students could not develop rapport with the school personnel or even adjust to its environment.
- Parents were found lacking in proper motivation for getting their children; educated because they did not find education relevant to solving their day-to-day problems.
- Double enrolment was also observed to be an important factor responsible for dropout of the students.

7.5 Motivating Factors

- The presence of Balsakhis was very helpful in bringing the students to school.
- Continuity of Balsakhis in the schools would positively contribute to the retention of the students.
- Organization of different cultural activities like mela, small gatherings of parents, identification of non-school going children, were found helpful in retention.
- Schemes of distributing uniforms, books and mid-day meals were found helpful in attracting the students to schools and their retention.

- Support from Janshala was found to be quite encouraging for motivating parents, teachers, Balsakhis and other stakeholders.

8.0 DISCUSSION

It can be inferred from these results that there is a wide gap between the planning and delivery (process) of this scheme and that the commitment of teachers and financial help play a very crucial role in the retention of students. Mutual trust and honesty are the other salient features which deserve special attention. On the academic dimension, the non-school going student were found comparable with the regular school going students when bridge courses were organized. Similar results were also found in the study conducted by Wheatland (2000) of Morgan State University. No major difference was observed in the performance of boys and girls. Similar findings were reported by Buch (1988) that sex difference did not have any significant impact on learners' school performance. School environment and teaching methods were the other crucial factors in retaining students in the school. The problem of emotional adjustment at the initial level was observed which decreased with time. The students of bridge course who continued their study were found happy. Bossism, superiority complex, job insecurity, the quota system, the dull and ineffective use of teaching methods, late admissions, the formal set-up of schools and the lack of proper motivation among parents were the other reasons which played a negative role in this scheme. The studies conducted by Patten (2002), Saiful (2000), Wheatland (2000), Ruth (2002), Sharma (1981) and Buch (1988) also confirm the results of this study. However, the spirit behind this programme is laudable and more effective results can be generated if such schemes are properly executed.

9.0 SUGGESTIONS FOR IMPROVEMENT

- In the selection of Balsakhis, emphasis should be laid on commitment and dedication and not only on educational qualification.
- The quota system should be abolished and all the students should be admitted.
- Students should be given admission in the neighborhood schools only.
- School teachers should be told and convinced that Balsakhis were indeed helping them; they should not dictate terms to them or treat them as inferior.
- Infrastructure should be increased as some schools of urban areas lack even basic facilities.
- Teachers should be motivated to act as social agents and not just to work for salary.
- Parents' co-operation is still needed to make such a programme successful.
- Peoples' representatives were found to be careless about the entire school; they should feel more concerned towards education.
- Emphasis should be laid on joyful learning.
- Education officers should pay frequent visits to schools. During the survey, more than 10% schools were found to be actually closed.

10.0 CONCLUSIONS

Thus, a programme which was launched with lots of hope and which had a sound financial and ideological support faltered due to poor implementation. Lack of sincerity and commitment in the people involved with the children was another factor that took its toll. If only zealous people with a missionary spirit could take up such innovative initiatives, the state of primary education in India would change for the better.

REFERENCES

1. Ayyer, RBU. (1996), 'Human Rights and Fundamental Education'. (Paper presented in the seminary organized by National Human Rights Commission, Bangalore).
2. Buch, M.B. (1988), 'Family Background Variables, Some Motivational Variables, Cognitive Characteristics and the School Performance of the Primary School Children'. *Vth Survey, Vol. II.*
3. Global Movement for Children (1990), *Convention on the Rights of the Child,* World Summit for Children, New York.
4. Janshala (2002): Towards Empowered Community Schools, MHRD, New Delhi.
5. Patten, L.A. (2002), 'Studies on increasing minority enrolment in Arizona University'. *Dissertation Abstract International,* Vol. 63, No. 2.
6. Report of the Working Group on Elementary Education, Non-formal Education. Early Childhood Education and Education for the IX Five Year Plan. (1996) MHRD, New Delhi.
7. Ruth, K.K. (2002), 'Retaining Children in Schools through Playway and Activity Based Methods'. *Primary Teacher,* Vol. XXVII No. 3.
8. Saiful, I.M. (2001), 'Studies of Factors Responsible for Primary School Dropouts in Rural Bangladesh'. *Dissertation Abstract International,* Vol. 6, No. 11.
9. Sharma, H.C. (1981), 'Effect of the Stay of Teachers on the Enrolment and Retention of Boys and Girls in Primary Schools', *IV Survey,* Vol. II.
10. UNICEF (1999), *The State of the World's Children.* New York: UNICEF Headquarters, United Nations Plaza 29.
11. Wheatland, J.A. (2001), 'Relationship between Bridge Program and Academic Performance and Retention Status of First Time Freshman Science Engineering, and Mathematics Students at Morgan State University.' *Dissertation Abstract International,* Vol. 61, No. 12.
12. Wolfenshon, James D. (2000), 'A Time for Action: Placing Education at the Core of Development'. (Paper presented at the World Education Forum, Dakar: Senegal).

6

TEACHING COMPUTERS IN PRIMARY SCHOOLS: AN EXPLORATORY ACTION RESEARCH

D.K. CHAKRABORTY

ABSTRACT

It is widely believed that the computer is at best a fancy gadget for young students in primary schools, especially those from poor families. Some teachers are apprehensive about these students damaging the computer, others feel that these learners will be overawed by the machine. The author conducted this action research on forty "weak" students of standard IV from ten state-funded schools of the metro. Four such students were identified by the teachers in each school and they took part in a three-day camp in a centrally located school to learn basic computer operations. The learner group was a mixed ability group and consisted of boys as well as girls. Data in terms of learners IQ, marks (%) on achievement test and post-test on basic computer operations were tabulated. The results indicated that the "weak" learners learnt almost as well as the high achievers did, they performed various basic computer operations within the allotted time and were enthused about learning what was taught to them.

1.0 INTRODUCTION

It has been observed that there is a tendency amongst the students in primary school to dropout after class 3. This problem is more acute in the case of the students coming from families belonging to weaker socio-economic sections of the society. There are various factors responsible for this situation which have already been explored by various educationists and researchers. However, there is an important factor which may be no less responsible for this phenomenon. This factor concerns the stereotyped teaching-learning system, which has quite failed to engage and retain the attention of the primary stage students. The investigator was interested in designing and using a new approach and assessing whether it could improve the situation. The investigator tried out computer assisted learning with a view to enthusing relatively weaker students in primary schools.

2.0 OBJECTIVES OF THE STUDY

The following were the objectives of the study:

- To motivate "weak" students to perform as well as other students do.
- To assess how primary students from different schools in the metro responded to teaching basic computer operations.
- To examine the feasibility of introducing computers in the primary schools in the state.

3.0 STEPS TAKEN FOR CONDUCTING ACTION RESEARCH

The following steps were taken for the conduct of the study:

a) Ten primary schools located in different parts of Kolkata City were identified with the help of the Calcutta District Primary Council, which is the controlling authority of the primary schools in Kolkata. The schools were selected particularly on the consideration that the students of those schools mostly come from very poor families. The names of these schools are:

1) Park Circus Girls School (Primary)
2) Alipur Abaitanik Vidyalaya.
3) Sri Sambhu Sadan Vidyalaya.
4) Natun Pathsala.
5) Kasba Balika Vidyalaya
6) Bastuhara Vidyapith
7) Muralidhar Girls School
8) Maktab Islamia Primary School
9) Calcutta Orphanage School
10) Khanpur Boys School.

b) The authorities of those schools were requested to select four students of each school from Standard IV who were marked as comparatively weak learners and were also irregular in attending school.

c) These ten schools were requested to send those forty students for participation in a camp organized in Kamala Girls School, another school of Kolkata. That particular school was selected because it is centrally located and is easy to reach.

d) The camp was held in the primary section of the Kamala Girls School for three days during the period April 16 -18, 2001. All the primary teachers of that school and those of the schools selected for the study were also invited to attend the camp.

e) Six PCs with certain specifications were hired from some agencies and these were installed in a hall of Kamala Girls School where the children and the teachers were to assemble. A group of teachers of David Hare Training College Institute of Advanced Studies in Education under the leadership of the principal conducted the camp from 10.30 a.m. to 4.00 p.m. each day.

f) On the first day, i.e., April 16, the children, after their assembly, were at first administered on I. Q. Test (Culture Free) and an Achievement Test suitable for them. The results of these tests were tabulated.

g) In the second half of the first day the children were divided into eight groups each comprising five students. These students were helped to acquaint themselves with the external parts of the PCs installed in the hall. It was noted that most of the children had no idea about a computer, although a few of them had heard the name.

h) On the second day, the students of each group were instructed by the teachers of David Hare Training College, IASE, about how to handle the PCs and how to perform simple operations like writing of names, doing a simple sum etc. with the help of a PC.

i) On the third day, the students were tested indivi-dually to find out whether they were able to recapitulate what they had learnt the previous day through hands-on experience with PCs.

j) After an interval of ten days, these students were again invited to participate in a camp organized in Kamala Girls School on April 27, 2001. During the intermittent period, the teachers of the ten schools were requested to bring their students, who had partici-pated in the previous camp, to Kamala Girls School on a convenient day for revising their knowledge about PC.

k) At the camp held on April 27, 2001 in Kamala Girls School, these children were subjected to a simple test to assess how far they could recall and apply their new knowledge about basic computer operations. The results obtained were quite interesting.

l) It was a problem to engage these students from 10:50 a.m. to 4:00 p.m. on camp days. The authorities of Kamla Girls School were kind enough to provide tiffin to the students participating in the programme.

m) It was observed that the majority of the children who were identified as 'weak learners' by their respective schools, had shown good performance in handling the PC. Moreover, a good number of them had I.Q. nearing 100 and some had I.Q. even above 100. The results of the test administered on some of the children are tabulated in table 1:

Sl.No.	**Name**	**I. Q.**	**Marks in Achvt. Test (Out of 100)**	**Marks in Computer Operations (Out of 100)**
1.	Ritu Baidya	95	65	87.50
2.	Bhaskar Biswas	89	20	62.50
3.	Sucharita Chatterjee	87	55	75.20
4.	Prianka Das	81	50	76.00
5.	Sandip Ghosh	81	50	75.00
6.	Susmita Mal	81	55	56.25
7.	Naira Hanif	77	50	81.25
8.	Iaaran Aligazi	76	66	87.50
9.	Ratan Gomej	74	50	68.75
10.	Sreyashi Datta	120	90	95.00
11.	Swapna Mukherjee	78	40	50.00
12. *	Purnima Jana	84	55	47.75
13.	Riya Guha	76	48	52.6
14.	Rajleena Ghoshal	107	90	94.00
15.	Sudipta Chowdhury	105	55	87.50
16.	Puja Shaw	84	85	81.50

* *The student at Serial No. 12 was very hyperactive and inattentive. She did not answer all the items in the Achievement Test.*

4.0 FINDINGS OF THE STUDY

The following were the findings of this study:

- It was observed that on all the days of the camp the "weak" students were interested in whatever was taught to them; they were actively involved and attentive to the learning task in hand.

The "weak" learners learnt at par with others, including the above average learners. They were not afraid of, or overawed by, the computer and they performed various basic operations within the allotted time.

The response of the learners indicated that computer may be introduced as a learning tool in all primary schools, urban as well as rural, of the state.

IMPLICATIONS OF THE RESULTS

e results of this action study amply reveal that the "weak" students from poor families dying in Standard IV in state-funded primary schools are not reluctant learners; in t, they are quite avid learners and they are able to learn and perform basic computer erations taught to them as well as their better placed classmates can. Besides, the sults of this study have been well received by the primary education authorities of the ate government. In fact, the introduction of computer literacy programme in all primary hools of West Bengal is now under active consideration of the authorities. It needs to mentioned that the schools, those that sent their students and the one where the mp was organized, responded quite enthusiastically. The teachers too felt that they ld try out the use of computer in their classroom quite effectively. This shows that mary school teachers are willing to learn how to use computers and try out new hniques. This augurs well for the health of primary education in West Bengal.

Items for the evaluation of knowledge of the children in basic computer operation

(English translation)

us.1) a) Name [illegible] three main parts of the computer placed before you. (5 Sec)
ns. CPU, Monitor, Keyboard
us.1) b) Tell any one function of the keyboard. (10 Sec)
Ans. Writing, drawing pictures, erasing.
Qus.1) c) Tell any one function of the monitor. (20 Sec)
Ans. Computer works through Monitor. As a result I can see on the screen what I have operated on the Keyboard.
Qus.1) d) What are the functions of the following: (any two) (10 Sec)
Enter, Backspace, Delete, Edit.
Qus.2) Find out, with the help of PC, the sum of three numbers each of two digits. (60 Sec)
(Note the time taken by each student)
Qus.3) With the help of PC, subtract two numbers each of two digits. (60 Sec)
(Note if the time taken exceeds 60 sec.)
Qus.4) Multiply, with the help of PC, two numbers, one of three digits and the other of two digits. (90 Sec)
(Note if the time taken exceeds 90 seconds)
Qus.5) Divide, with the help of PC, a number of three digits by another number of two digits; what is the remainder, if any? (60 Sec)
(Note the time taken by each student)
Qus.6) Write your name on the PC. (20 Sec)
(Give Instructions for writing in capital letters and leaving one space between the name and the surname)
Qus.7) Draw a quadrangle on the PC. (60 Sec)
(Note the time taken by each student).

7

IMPROVING THE ACHIEVEMENT LEVEL OF STANDARD III CHILDREN IN EVS THROUGH POWER POINT

S. VINCENT DE PAUL

ABSTRACT

The National Policy on Education (1986) envisaged that before we enter the 21st century free and compulsory education of satisfactory quality should be provided to all children up to the age of 14 years. The Eighty-third Constitutional Amendment Bill makes elementary education a fundamental right and a fundamental duty. Universalisation of Elementary Education (UEE) in our country is moving in the right direction. Among the three targets of UEE, the universal access has been attained for more than 94% children. The success of UEE depends on its quality. The completion rate and retention rate are not quite satisfactory especially for the girl child, the provisional figures for girls in classes V and VIII being 58.68% and 39.91% respectively.

A major factor for low completion rates is the classroom transaction approach used by the teacher. Unless the teachers' transaction approach is made attractive, lively and impressive, the rise in childrens' attainment to a higher level will not take place. The teacher should be competent to adopt and develop innovative practices in the classroom for maximizing learning outcomes. A preliminary study indicated that students of standard III were not able to understand the concepts of small family, large family, joint family and the issues and problems of large family. The researcher used Power Point presentation for improving the achievement of learner competency in social sciences among students of standard III.

1.0 INTRODUCTION

All educators know that the National Policy on Education (1986) envisaged that before the beginning of the 21st century, free and compulsory education of satisfactory quality should be provided to all children up to the age of 14 years. The Eighty-third Constitutional Amendment Bill makes the right to elementary education both a fundamental right and a fundamental duty. Universalisation of Elementary Education (UEE) in our country is now being pursued vigorously through Sarva Shiksha Abhiyan. Among the three targets of UEE, universal access has been attained to the extent of more than 94%. The success of UEE depends upon the quality of education imparted through it. The other two targets, viz., completion rate and retention rate, are not being achieved as well as the target of universal access. This is obvious from Table 1 below.

Table 1 : Retention Rate-All India Level , 1964-65 to 1998-99 (Percentage)

Year	Class V		Class VIII	
	Total	Girls	Total	Girls
1964-65	37.10	32.00	---	---
1974-75	36.80	33.30	21.30	16.30
1984-85	50.38	47.54	35.65	29.60
1990-91	61.04	56.41	39.10	34.87
1998-99*	60.26	58.68	43.18	39.91

*

Provisional

S *Varghese and Mehta (1999a) and MHRD (2000a).*

A r of factors are responsible for the poor completion rates, the predominant one a hese is the transaction approach followed by the teacher in the classroom. U he transaction approach used by the teacher is made attractive, lively and e , the level of attainment of children will remain much lower than the expected le e teacher needs to be competent to adopt and develop new innovative practices in assroom and thereby attain maximization of learning outcomes. A preliminary st y the investigator indicated that the students of standard III were not able to ur and the concepts of small family, large family, joint family and the issues and pr ns of a large family even after these had been taught to them. The researcher us nore interesting modes of presentation through computer based Power Point. This pa discusses the impact of Power Point presentation in improving learner competency in al science among standard III students.

2 POWER POINT PRESENTATION

F Point Presentation can enhance learning by providing learners with a road map, ting them to learn more effectively, reinforcing what the teacher says through the graphics and other multimedia to improve learners' understanding and to support eferred learning styles. (Uma Ramesh, 2003).

ng to Uma Ramesh (2003), Power Point Presentation is useful to the teaching g process in the following situations:

- anizing and reorganizing information efficiently so that students see the structure he presentation made by the teacher;
- oviding learners more time for listening and comprehending so that class time is ed effectively;
- Providing learners with easy-to-read and comprehend material compared to that on the chalkboard;
- Illustrating concepts with pictures and other multimedia devices;
- Merging seamlessly text, graphics, sound, multimedia, offering better control and visual dynamics;
- Allowing the teacher to easily modify and enrich information on slides and through lecture;
- Enabling the teacher to face her students instead of the chalkboard; and
- Presenting outline of information in a sequential manner.

3.0 POPULATION EDUCATION

Population education as a course serves an educational plan because it enables learners to look upon the population of the family, society, country and the world from a new stance. It helps develop among students a rational outlook and responsible attitude and behaviour towards population. Population education enables students to understand the effects of the explosive increase in human population, the rapid shifts in concentration and distribution of people, the implications of changing age-related and other demographic patterns in our population in relation to our countries. Besides, it educates learners about the various options open to mankind to cope with the various problems resulting from population explosion. While teaching, population education is not confined exclusively to a particular age group, it focuses primarily on students who will become reproductively active adults in a decade or so.

It appears more logical to explain population education in terms of its objectives rather than through a single definition. Bhatia (1969) pointed out six primary objectives of population education as a curricular area:

1. Basic understanding of population dynamics including the growth rate and structure of population in the country in the context of world population;
2. Appreciation of the significance of the population characteristics, for the present and future quality of life, including economic development and attainment of a high level of health, education, housing, diet, and other amenities of life;
3. Realization that the size of the family can be easily planned for the benefit of individual families and that large ones are not necessary in the present day;
4. Appreciation of the small family as a setting in which a high quality of life for each person is more likely to be attained;
5. Understanding of the health risks involved for the mother and the child; and
6. Understanding of the government's efforts towards family planning in relation to the country's needs.

Family planning reduces the birth rate during a particular period only and hence it is applicable to that period only. But providing population education to children below 15 years, who constitute 45% of the total population, will no doubt provide a somewhat long term solution to the negative effects of population explosion. Hence the need to include population education as a component of the primary level curricula.

4.0 NEED FOR THE STUDY

The National Curriculum Frame Work for School Education (2000) has rightly pointed out the importance of population education in the school. Population Education has been imparted from the primary school itself under Minimum Levels of Learning (MLL). All primary schools that follow the state board syllabi in Tamil Nadu are imparting population education from the primary classes. In standard III there is a competency to be developed among learners in the context of population education. It deals with the identification of small family and large family and the problems of population explosion in general and those of environmental pollution, scarcity of drinking water, and non-availability of pollution free transport vehicles in particular. When the investigator visited the Panchayat Union Primary School A, Pudupatty, in Viralimalai block of Pudukkottai district in Tamil Nadu and put some questions on the concepts related to population education to the students of standard III, they were not able to provide correct answers. This revealed that the students of standard III had not yet attained mastery in the concerned competency. It is necessary to enable the students to attain mastery in three relevant competencies and this study was undertaken with this broad objective.

5.0 RESEARCH QUESTIONS

The following research questions were asked:

1. Have the standard III students attained the expected competencies related to population education?

2. What are the reasons for non-attainment of these competencies by the standard III students?
3. What strategies need to be used to enable these students to attain these competencies?
4. What tools are needed for the study?

6.0 OBJECTIVES OF THE STUDY

The present study was planned with a view to attaining the following objectives:
1. To assess the attainment level of the students with respect to the competency of regarding the concepts of small family, large family, joint family and the issues and problems of large family;
2. To identify the reasons for non-attainment of the competencies for the lesson Valamae Sumaiyanal (Resource itself becomes Burden) under Environmental Social Science;
3. To develop suitable software using educational technology to help students get over the difficulties in attaining these competencies; and
4. To use the Power Point presentation strategy to get over the hurdles in attaining mastery of the competencies.

7.0 HYPOTHESIS

"Learning through developed software in Power Point or through lecture does not lead to any significant differences in the learning levels of standard III students."

8.0 METHODOLOGY

This study had five phases. The first phase consisted of finding the reasons for non-attainment of the competencies related to population education among standard III students. The second phase involved the construction of pre-test and post-test questionnaires. The third phase consisted of developing software for Power Point presentation. The fourth phase involved the conduct of the study and in the fifth phase the students' achievement was evaluated.

9.0 SAMPLE

A single group pre-test/post-test experimental design was used in the study. All the 10 students of standard III Section A, Pudupatti Panchayat Union Primary School of Viralimalai block in Pudukkottai district of Tamil Nadu were taken as the sample for the study. The school is a multi-grade one and has two teachers.

10.0 PROBABLE CAUSES FOR NON-ATTAINMENT OF THE COMPETENCIES ON POPULATION EDUCATION

The following are the probable causes due to which the standard III students of the school are unable to attain mastery of the competencies on population education:
1. Students of this school belong to a remote village and have not witnessed any major impact of population explosion;
2. Most of the families in the village are joint families and students are not able to differentiate between a small family and a joint family; and

3. The teaching-learning processes do not provide any direct experiences of the impact of population growth.

11.0 IMPLEMENTATION OF STRATEGY

Pre-test was conducted with the test developed by the investigator. Power Point Assisted Instruction with teacher support was followed in the study. Training in using the computer was organized for the teacher and students. Within an hour the teacher and the students were able to use Power Point with in the Computer. The students with the help of the teacher and the investigator observed the slides in power point presentation, saw the message in the slides, had direct experience of the scenes on the screen and thus received the instruction. They repeated the presentation two or three times till they felt that they had developed the competencies by themselves. Sound and animations were incorporated in the Power Point presentation.

Activity 1

The spoken message that "A family consisting of the father, the mother and a single child or two children is called a small family" was received by the students. A picture depicting a small family was also seen by them. Along with the picture, the definition of a small family was also given; the students read it and tried to understand it.

Activity 2

A picture showing a large family was displayed on the screen. The students received a spoken message, "A family having the father, the mother and three or more children is called a large family". The same spoken message was displayed in writing on the screen and the students by viewing it tried to understand the concept of a large family.

Activity 3

The students were asked, "What is a single family?" The students replied that they did not know. Then they were asked to touch any key on the key board. When they did so, the picture of a single family appeared on the screen. Then a spoken message was given, "A family having the father, the mother and the children is called a single family". A written description of the single family was also displayed on the screen. The students tried to understand the concept of the single family.

Activity 4

The students were shown a picture of a father rabbit, a mother rabbit and one small baby rabbit on the screen. A spoken message was given that adequate space, food and clean environment are available to this rabbit family. A question was put to the students, "What difficulties would be faced by a large rabbit family that lives in the same place instead of the small rabbit family?"

Activity

The students were shown a picture on the screen showing a father rabbit, a mother rabbit and a large number of baby rabbits living in the area shown in activity 4. A set of questions was put to the students: "Do the rabbits have enough space, food and clean environment?" "Why have you given this answer?" Depending upon the students' reply, the answers to the questions are provided orally as well as in writing. For example, the explanation provided was, "Because many rabbits live in a small area, they are struggling for adequate space, food and clean environment". This was displayed on the screen. Students found it easy to understand the consequences of population explosion.

Activity 6

The students were shown a picture on the screen depicting a child named Seenu telling his grandfather that he wanted to play. The students understood that Seenu wanted to play. Then they were shown a picture of many houses in a street. An oral message was delivered, "There are houses everywhere in the street. Where can young Seenu play?" The students are shown a picture on the screen with many vehicles moving at a fast speed. An oral question is put, "Where will Seenu play?" Then the students hear Seenu telling his grandfather, "Grandfather! I have no place to play. Does that mean that I cannot play? Does that mean that no child can play now?"

The students were then shown the picture of the grandfather playing in his house when he was a young boy. In the picture the students saw a lot of open space around the house and also many shady trees. The students heard grandfather telling Seenu, "When I was a small boy, there was a lot of open space around my house and many shady trees too, and I used to play there with my friends".

The students were now shown the picture of the previous shot with houses in the place of trees. Many houses were very close to each other with hardly any space between them. The students were asked "Do you know why the place where trees stood earlier is now occupied by houses?" Depending upon the students' replies, they heard the oral explanation that population increases every day and in order to accommodate people the number of houses increases every year. Because of this, trees are cut down and the space is used for building new houses.

Activity 7

The students were shown a picture by depicting some starving people in over-crowded locations. An oral message was given the computer, "Due to population explosion, the number of houses and industries has increased. As a result of this, the land available for growing crops is reduced. This causes food scarcity. Therefore we can see people starving in over-crowded locations."

Activity 8

A picture showing rows of apartments was shown to the students. A question was then put to them, "Why do our cities have more and more apartments in place of houses?"

Depending upon the students' replies, an oral explanation was provided by the software and it was seen in print also, "This is due to population explosion. Apartments occupy less space than houses. Therefore our cities have more and more apartments these days."

Activity 9

The students saw a picture of a bus carrying many passengers inside, on its foot boards and on its roof. The software then put a question to the students, "Why is the bus so crowded?" Depending upon the students' replies, the computer provided an oral as well as written explanation. The students heard and saw the message, "This is due to population explosion. There are fewer buses and too many passengers to travel on them. Therefore almost all buses are overcrowded."

Activity 10

The students were shown a picture of a fight in a long queue in front of a ration shop. The software put an oral question to the students, "Why are there such large crowds in front of the ration shop?" Depending upon the students' replies, the computer gave an oral and written explanation. The students heard and saw the message that there are long queues in front of the ration shop due to population explosion.

Activity 11

The students saw a picture on the screen showing a large number of sad looking people standing in a long queue in a hospital. An oral question was put to the students, "Why are so many people standing in a long queue for so long and why do they look so sad?" Depending upon the students' replies, the computer provided an oral and written explanation. Students heard and saw the message that this was due to population explosion. Even sick people have to stand in long queues in hospitals.

Activity 12

The computer screen showed a picture depicting a small town as it was 50 years ago. Then it displayed the messages, "50 years ago, this town had less population. It was not overcrowded. Everyone had enough space; there were fewer vehicles but people travelled comfortably. Therefore fifty years ago, this town was not polluted".

Activity 13

The computer screen displayed a picture depicting overcrowded towns and cities. The students were asked then to list the differences between the life of our people 50 years ago and the life of our people now. Through oral and written messages the students were told that 50 years ago, our population was much less; therefore there was hardly any overcrowding, more space was available for every one. There weren't too many transport vehicles. Therefore the environment was not polluted. The computer again gave oral and written messages, "But today population has increased; so people live in overcrowded places; not enough space is available for everyone; transport vehicles are too many and this has polluted the environment".

Activity 14

The computer screen displayed a world map and an oral question was put to the students, "In terms of its population, where does our country India stand in the world?" The computer waited for the students' response. Then it provided the answer, orally as well as written on the screen, "India ranks second in the world in terms of its population".

Activity 15

The students' learning was evaluated and they received feedback. The computer asked them to list the problems caused by population explosion. Based on their replies, the computer software provided reinforcement orally as well as in print.

The students gave the following responses to the question:

1. Land becomes scarce; there isn't enough land for every one.
2. Food becomes scarce.
3. Land is used more and more for building houses.
4. The number of vehicles increases; this increases air pollution.
5. Hospitals and ration shops are overcrowded. People, even sick people have to stand in long queues.

Activity 16

The computer asked students "How can these problems be avoided?" Depending upon their replies it provided reinforcement. The computer screen displayed a picture of a small family enjoying life; every one in the family was happy. A message, oral as well as in print was given to the students, "By following the small family norm the problems that arise because of population explosion can be avoided."

Activity 17

The computer then instructed the students to observe their surroundings while returning home from school and answer the following questions displayed on the screen after discussing the questions with their parents.

When your parent was a small boy like you -

1. was good drinking water available all the time?
2. what were the vehicles in which they used to go to other places?
3. how many rooms were there in his school?
4. how many students were there in his school?
5. how many teachers were there in his school?
6. was the environment polluted?

The computer set more tasks for the students by asking them to list a number of items and compare each as it was 40 years ago with what it is now and collect the reasons for the changes.

With this, the experimental treatment came to a close.

12.0 RESULTS AND DISCUSSIONS

A post-test was conducted with the achievement test developed by the investigator. The data revealed that the students performed better in the post-test than in the pre-test.

Table 1: Pre-test and Post-test Scores of Students

Students	Pre-test scores	Post test scores
1	20	100
2	20	93
3	0	80
4	7	87
5	20	93
6	20	93
7	0	80
8	0	100
9	0	87
10	20	93

Table 2: Pre-test and Post-test Means: Sex- Wise

S. No.	Sex	Pre-test %	Post-test %
1	Male	14.5	91.0
2	Female	5.0	90.0

In the pre-test girls scored less than the boys did. This may be due to the fact that rural girls initially have low access to direct experiences on this competency, but in the post-test they do not differ from the boys in their performances.

Table 3: Significance of Mean: Difference in Pre-test and Post-test (N = 10) r =0.556

S. No.	Mean	SD	t-ratio	Remarks
1	10.7	10.02	29.85	Significant at 0.001 level
2	90.6	7.07		

T alculated ‘t’ value 29.85 is greater than the required critical value at 0.01 levels of s cance and hence the null hypothesis that teaching through Power Point presentation a hrough lecture does not lead to significant difference in the learning levels of s ard III students is rejected at 0.01 level of significance. This shows that the power p based software programme is quite effective in increasing the attainment of the s nts of standard III so far as the learning of the population education concepts is c erned.

4 EDUCATIONAL IMPLICATIONS

- The developed power point software can provide direct learning experiences for enhancing student competencies in Population Education.
- The developed power point software is gender free in terms of its effectiveness.
- In multigrade school settings Power Point presentation is a powerful tool for eaching-learning.
- More Power Point soft-wares on various curricular topics for primary classes may e developed and tested.
- The other educational technology devices may be used along with Power Point oftware to maximize students’ attainment levels.

REFERENCES

Howell, Joseph. H., and Dunivant, Stephen. W. (2001), *Technology for Teachers.* New Delhi: Tata Mc- Graw Hill.

2. Koul, Lokesh. (1997), *Methodology of Educational Research.* New Delhi: Vikas Publishing House.

3. Padya, Rameshwari. (2001), Importance of Imparting Population Education. *Indian Educational Review* 107. (1)

IMPROVING TEACHING THROUGH INNOVATIVE PRACTICES AT ELEMENTARY STAGE

M.N. BAPAT & N.R. NAGARAJA RAO

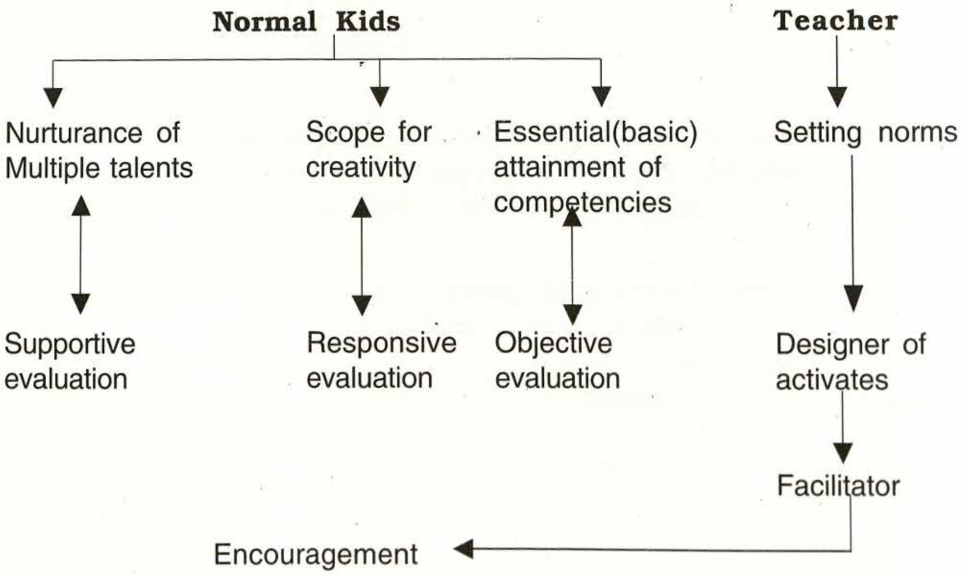
ABSTRACT

Even the best curriculum for elementary classes can become ineffective if the teacher does not use appropriate transaction strategies. In fact, innovative teaching techniques contribute a great deal to the quality of transacted curriculum. This paper stresses the contribution that teachers can make to quality elementary education and advocates the use of a variety of activity-based teaching techniques. The fact that students learn both as individuals and as members of a learner group gives teachers many opportunities to exercise creative options in terms of classroom practice. The authors briefly describe more than twelve of these in terms of how these can be used as well as their strength and weakness. They use an illustrative example comprising eight activities to concretise 'analogy based learning, in particular, through a set of questions on various aspects of the theme. The authors conclude with the hope that classroom learning can function as 'a fountainhead of ideas and insights' that can enrich both teaching and learning.

1. INTRODUCTION

It has been felt that education for kids should be based entirely on the concept of having fun, play, forming groups (group mingling), interacting and expressing self and allowing one to be as best as one can be.

The National Curriculum Framework for School Education - 2000, advocates the following areas in addition to the other features.



he Framework stresses the need for delegating to the individual schools the responsibility f developing a suitable curriculum. It, however, recommends that the curriculum should e based on the locally available resources including human resources. So, it is not only he well furnished institutes that get autonomy but also the school in each village/locality/ own/city/metro. The school must be made responsible to design a child-centred urriculum in view of the local needs, the facilities available and the environment. The mode of the transaction of content, expected activities and the modes of evaluation are also to be indicated in the curriculum.

In this context, let us see how activities can be designed so that learning at the elementary stage becomes more effective in terms of joyful participation. First we will consider what an activity for a learner means through the following chart.

		Undertaken	**Essentials**	**Type of learner**
Teacher as nspirer/ acilitator/ eader	Activity	By individuals	Maturation, skill and experience	Gifted
		By smaller group	2-3 members	Responsible
			i) Each member knows the task to be performed by himself/herself.	
			ii) Serious but semi mature	
		By larger group	10 to 15 members, working in group skills, group relations, and role of each member known to every one in the group.	Working in harmony

An activity can be any act performed by the doer in order to complete a given task. Thus, in a learning situation, an activity can be concerned with any one of the following:

- *Imitation* wherein the learner tries to imitate the peer/elder/instructor. In doing so, he acquires the skill of observation and articulation and draws the attention of his group.
- *Applying* the experiences/knowledge/skill gained in one situation to some other situation. It is not always possible that what is learnt in one situation works equally effectively in any other situation. When confronted with failure, the doer tries to analyze the situation and sometimes modify the hypothesis and work out a proper response.
- *Solving problems* when the learner is puzzled about something and he does not know what exactly to do. He wants to know something but does not know what the answer could be or how to find out the answer. Sometimes, his previous experience works. Sometimes he needs some clue; he needs to experiment, to discover and finally to work out the solution.
- *Reading literature* to get the necessary information, to get enjoyment and to clear doubts.
- *Watching interactive media* like the TV, film or any other kind of animation.

- *Watching nature,* wherein the learner appreciates nature, its manifestation, inter-relations, environment etc. Here he learns without being told.
- *Listening* to a tale from an elder in the warmth of burning fire whereby he learns to appreciate values and what ever is good.

It may therefore be assumed that the learner will be active, he will understand and accept what he is told and he will modify his behaviour accordingly. Thus, being active he will encompass a broader range of human behaviour. In activity based learning, the learner learns through his first hand experience without being conscious of it. Let us find out what aspects we can explore.

Classroom Activities in a Group

You may have enjoyed an orchestra in which each player may be playing on a different instrument, yet there is a coherence, understanding, unity and a feeling of oneness among its members. Whenever a learning activity is undertaken in a large group, each member involves himself in its objectives. He learns therein how to supplement and complement, how to lead, how to ensure cooperation, how to act in harmony with others and enjoy the activity. The group helps change the attitude of its members. It facilitates verbal interaction among them. When a question is posed to a group, its members display greater ingenuity in solving it and arriving at the answer.

The class, whether in an urban or a rural area, is essentially a large group of learners for the same purpose.

Some of the central ideas on which activity learning can be based are investigation, discovery, inquiry, creation and integration. Group activity can be concerned with any one of the central themes and support learning in any mode of learning. Some transaction modes for learning are described below:

a) Exposition based learning

This method is the most widely used one. Since it involves exposing students to a variety of experience to promote their learning, it may also be called 'exposure based learning'. Exposing students to exhibitions, festivals, fairs, science, art corners etc. can develop among them aesthetic sensibility, appreciation, the urge to learn a practical skill or craft. The students may also develop the urge to use their skills and abilities in a more constructive manner. Exposure to great works of art or inventions can inspire learners to emulate the artist or the scientist. The teacher may, during such exposure, assert that all such events and exhibits can teach us something and also motivate us to excel. While using this method, the teacher should ensure that through it, the students receive a rich variety of experience.

b) Community service based learning

Inculcating values is one of the major tasks of a teacher. Selfless service is 'Shramadan' which should be practised according to the needs of the society – be it in the form of cleaning the environment, working in the fields, conducting a literacy campaign, generating awareness for the environment, educating the community about hazardous diseases/chemicals, handling of new gadgets or any other kind of voluntary work for the community.

c) Survey based learning

Participation in the conduct of a community survey can be a great learning experience. Surveys can help us understand the socio-economic environment in which a community lives, the problems it faces, the geographical area it inhabits and its needs and aspirations. Through surveys, students can develop social interaction skills, interview skills and the skill of noting information provided by or collected from others. In order to ensure that the survey is indeed useful to students, the teacher needs to plan it meticulously and decide the roles the students are to play.

d) Library based learning

This mode of transaction is considered the simplest because one does not have to go outside the school; instead one has to work individually sitting in the library. The teachers need to guide the students about how to search the suitable material for the topic and take notes. Perhaps, its only requirement is that the school should have a well furnished library with the latest stock of books and journals on various disciplines. This obtains only in a few schools. Most school libraries have old stock. Library based learning promotes the skill of working independently and helps develop self-directed learning.

e) Situation based learning

A hypothetical problem situation can be presented to the learner group and their responses can be noted for further discussions and then inferences are drawn. Showing a leaky tap, the teacher may ask the students to calculate how much water is wasted by this leaking tap?

f) Discussion based learning

It is well known that the teacher in a normal classroom cannot sustain pupils' interest beyond 20 minutes. But the involvement of the pupils in various classroom processes enables him to stretch this period to over an hour. An essential requirement of discussion is that knowledge/information on the given topic should first be obtained through different sources. After this, the teacher distributes questions to students and invites them to present their views. Thus, the teacher enables them to arrive at some logical conclusion. The teacher may give his opinion only at the end. Such discussions, if used often, develop confidence among the learners and reduce their stage fear. Absorption of heat by liquids/solids/colours/clothes of different fabrics may form a good discussion topic.

g) Quiz based learning

Quiz, whenever used in the class, creates a great deal of interest among the students. However, in order to make it successful, it should be accompanied by several relevant books for ready reference. Here the standard and vocabulary of the quiz items should be according to the maturity level of the learners.

h) Animation based learning

Such learning is considered to be very interesting and effective. However, it requires lot of effort on the part of the creator of animation in terms of his knowledge of t content and the level of planned interaction.

i) Nature based learning

Nature presents itself all around us in its diverse variety. A keen observation of natur over a long period can help us understand a phenomenon more comprehensively. Lif cycles of animals and studies of plant kingdom can be undertaken by students in thi mode. Students may be asked to observe the changes in colour/size/ structure an location of the leaf of a plant. A study of the phases of the moon, the movement o shadow, the uses of the sun's heat and light, exploring some of the earth's resources which include resources on land as well as those in the sea, can easily be worked upo by students independently as well as in small groups. Such activities can be pursue as learning projects.

j) Cartoon/caricature based learning

Students have a lot of fascination for cartoons because they generate humour. Cartoons engage almost total attention of young learners. This does not happen in most teache controlled activities. Therefore, occasional use of cartoons for supporting classroom learning can be extremely effective.

k) Adventure based learning

Bookish knowledge is said to be inferior to knowledge gained through experience. teacher can very well chalk out an adventurous activity on a certain topic which does n involve much risk. Difference in force and impact, lifting objects in water and on lan sky watch, climbing a mountain, rowing a boat, negotiating a rapid etc. can be tried o by the teacher.

l) Project based learning

Involving a larger group of students in a single activity is indeed a Herculean task. A heterogenous class is sometimes unsuitable for undertaking a learning project because of the lack of interest on the part of some students. It has often been observed that some students are reluctant to participate in a particular activity while others may exhibit high creative ability in devising a distraction that prevents learning. The teacher should be able to identify such abilities in their students and put these to constructive use. The teacher should ensure that he provides opportunities to the students that meet their learning needs and lead to the full development of their special ability/abilities.

Project based learning provides situations wherein all possible learning modes are effectively used groupwise by the students in order to complete a given theme project. Here the teacher identifies a major question which leads to several other questions. He then lists out the contents that need to be covered through the process of answering the main question. A question concerned with one concept is assigned to a smaller group depending upon the group's ability.

The teacher fixes a time frame for the completion of a project and reviews the tasks performed by each group at frequent intervals wherein groups seek suggestions from other groups and from the teacher. The groups voice their difficulties, if any, and seek help from all quarters to overcome them. The teacher sequences these questions and steers its presentation by one group after another. Project activities enable the students to develop in them qualities and skills like seeking cooperation/clarification, facing failures and experiencing the thrill of success. The students further learn how to organize the collected data in the best sequence and present it to the entire class. The teacher can analyze beforehand what behavioural outcomes he helps the students achieve through a given project.

The following example about the various aspects of a classroom project may be helpful:

Driving question – Why does hot water cool?
Concepts: Temperature, heat, heat as a form of energy, rate of cooling, difference of temperature, conservation principle, latent heat, specific heat, etc.

Supplementary Questions:

1. What is temperature? How do you measure it? (Let one group discuss and discover

2. What is heat? What are the sources of heat? Can you get heat from some other source of energy?
   (The second group may tackle these questions.)
3. Do all bodies cool? What are the conditions for cooling? (The third group may tackle these questions.)
4. What is the 'rate of cooling'? Do all bodies cool at the same rate? What are the different parameters that affect the rate of cooling?
   (Let the fourth group tackle these questions.)
5. When you say a body is warmer or cooler, what exactly do you mean? What is the 'reference' temperature? What is the difference in temperature? How do you account for the existence of the difference in temperature? Can you ascribe it to energy in transit? (Assign these questions to the fifth group.)
6. What is the principle of the conservation of energy? Design an experiment to show that energy given out by a warmer body is equal to the energy gained by the cooler body. What are the factors that affect your observations? What precaution should be taken to minimize the errors of observation? (Assign this task to the sixth group.)

   Depending upon the contents to be covered, more groups can be formed with more questions assigned to each of them.

   Finally, the experiences of the various groups, when integrated, may result in a better understanding of the phenomenon. The students' learning should be assessed through objective evaluation. The analysis of evaluation would suggest what modification(s) in the project based learning need to be effected.

m) TV/MM based learning

Such learning is useful in the distant mode. Selectivity is hardly in the hands the teacher. The teacher has only to provide the broadcast schedule and cassettes the relevant topics.

n) Internet based learning

This would be the learning related to a specific topic for which necessary resources are not available in the library. Several sites provide a wealth of information on the Internet and most of these can be easily accessed. This activity can be the privilege of schools with well developed information technology resources with peer groups available for on-the-spot help whenever necessary.

o) Analogy based learning

In view of the saying, "The more shadowy the conception to be visualized, the greater is the need for material analogy", it is evident that analogies by themselves cannot convey a true picture. An analogy can, however, present a logical view of a phenomenon and convey a significant feature or process of the phenomenon. Analogy has its inbuilt limitations. Unless these limitations are pointed out, analogy based learning can be dangerous. This mode of learning can be tried only while introducing abstract concepts. Given below are some projects based on principles similar to those which might cause scattering of light.

Activity I:

Fix a set of paper pins, equidistant in a row on a drawing board. Keep the board slightly inclined so that balls roll down if released on it. Release 10 steel balls (bicycle pedal balls), arranged in a line and held by a ruler from the lifted side so that on rolling down the plane, they may hit the pins (Fig. 1). Spread a uniform layer of sand at the edge where inclination ends. This will enable the balls to stop. The mark on the sand will enable one to find out the direction and distance through which the balls moved before stopping.

Observations

Set I:

i) Keep 1 cm space between the pins and release the balls from a distance of 5,10, 15, 20, 25, and 30 cms.
ii) Reduce the spacing between the pins to 0.6 cm and repeat the activity as given in (i) above.
iii) Reduce the spacing further to 0.3 cm and repeat the activity (i).
iv) If possible, keep the minimum possible spacing and repeat the same activity now.

Write down your observations systematically. Draw conclusions (as many as possible).

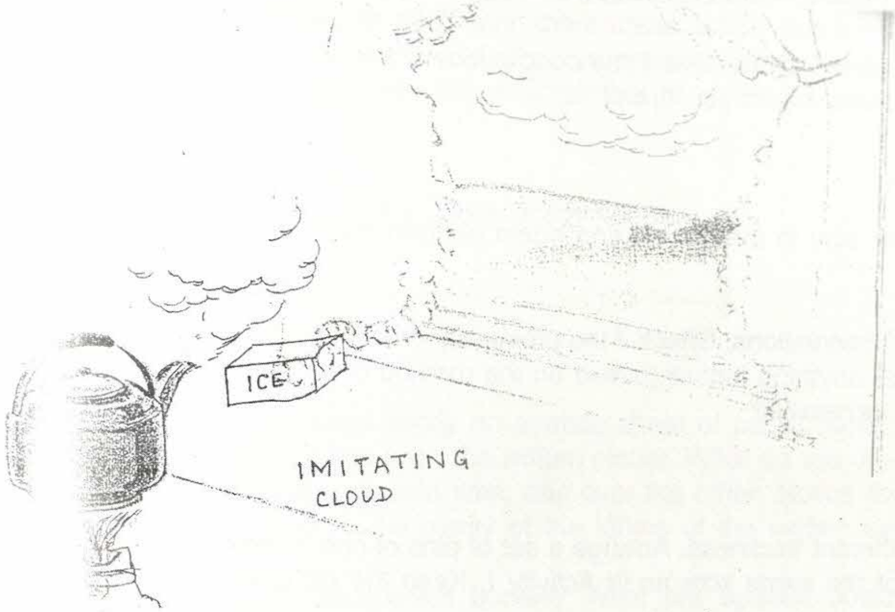
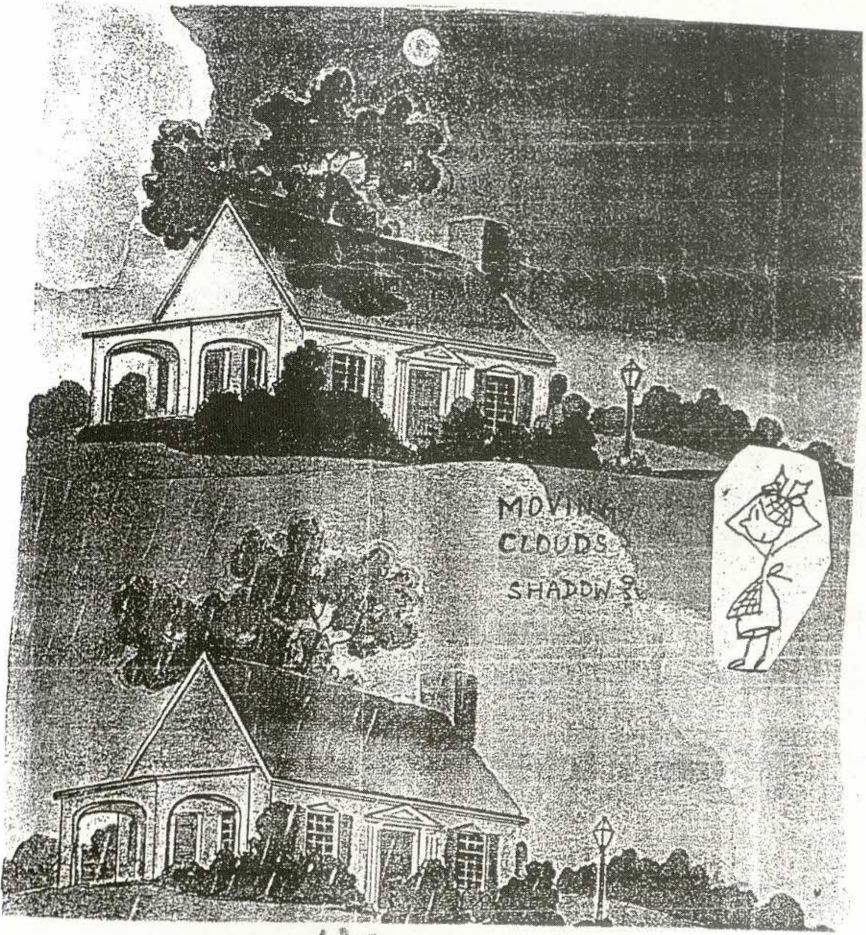


Fig a

Fig b



Set II:

Arrange the paper pins in two rows as if you were simulating the atoms of a lattice in two dimensions. Perform all the activities as suggested in Set I.

Write down your observations. See if the conclusions drawn in Set I are tenable. What additional conclusions would you draw?

Set III:

Arrange the paper pins in three rows and again perform the activities as suggested in Set I.

Write down your observations. Check if the previously drawn conclusions are consistent. Can you conclude anything further (based on the method of induction) if the number of layers is further increased?

Activity II:

Collect pins of different thickness. Arrange a set of pins of one thickness as in Set I, but use steel balls of the same size as in Activity I. Keep the distance between the pins fixed, say 0.5 cm.

Observation

i) First, make a row of the thinnest pins and find out the effect of the impact when the steel balls hit them (as they roll from a fixed distance). Record your observations.

ii) Next, take a set of thicker pins and repeat Activity I. Record the observations. Repeat this activity with pins of different thickness.

Draw conclusions. Would you like to add these conclusions to the conclusions already drawn in Activity I?

Activity III:

Fix a single small spherical object as the target instead of pins on the drawing board. Arrange the steel balls in a row and allow them to roll down the plane so that a few may hit the object also.

Observation

i) Locate the places where the balls did not reach. Draw appropriate conclusions after a few more trials.

ii) Now, fix a bigger object and again locate the space where the rolling balls do not reach.

Assumpti for analogy:

The steel s are simulating photons. The energy of these photons depends upon the inclination he plane and the distance from which they are released. If the balls reach a certain ion, light would also reach there under similar conditions. If balls are not found in ain regions, we would observe a shadow in the case of light. The arrangem of pins represents the arrangement of molecules in a two-dimensional lattice.

Corrobora your results on the above assumptions.

Associat phenomenon

Activity IV

Write dow a few sentences faintly on a white sheet of paper. Keep a stock of glass plates wi u. Put one plate upon the written matter. What do you observe? Now place more pla successively one at a time, one over the other. Notice the change in your earlier o vation. Discuss the clarity of the letters of the written sentences.

Now de What are transparent bodies? What are opaque bodies? How do you differenti between them? What should be the real criterion? Should you use phrases like 'deg of transparency'?

See if yo can correlate the above definitions with the following statement:

A body is opaque if

i) the size of its atoms constituting per unit space is large.
ii) the layers of its atoms are large.
iii) its atoms are not arranged in files when they form bodies.
iv) its atoms cast shadows.

Activity V:

Place the drawing board in a horizontal plane and put an object on it at its centre. Now push the steel balls arranged in a line by a ruler so that they move parallel towards the object (is it easy?). Answer the following questions:

i) Do all the balls hit the object?
ii) What happens to the balls that hit the object?
iii) Try to tell if using this activity as an analogy you could discuss something like reflection and scattering.

Now, would you agree that the moon can be an object that reflects the light falling on it?

Viewing Sensation

Activity VI:

Take a piece of white paper and write a few sentences on it in different colours. Ensure that each coloured writing is equally spaced. You may also allow the different coloured writings to overlap, one over the other.

You can use different scripts for different colours so that nobody makes out what is written on the paper. Now take it to a room that has moderate light and see the paper through different coloured glasses (you can make use of coloured gelatin paper as well).

Record your observations and try to find out the reason(s).

Now use a torch light and illuminate the paper with one colour (i.e. with coloured gelatin paper on it). What kind of change do you find? Repeat the observation with different coloured lights from the torch to substantiate your observations.

Activity VII:

Take a negative of a film and look through it. You can adjust it before a light source so that more light enters through it into your eyes. If someone suggests that you are in fact looking at the shadow, would you agree? Give reasons.

A Challenging task

Focus your attention on an illuminated picture (on the wall). Try to adjust the intensity of light in the room so that the intensity of reflected light from the picture through the negative is the same as the intensity of the shadow of the film. Write down your observations and give reasons.

To help you find out the reason, let us undertake an activity. Take a lighted candle and place it before a glass plate held vertically, say, 30 cm away from the candle. On the other side, at the same height and distance, place a beaker filled with water. See the candle through this beaker.

Make changes in the intensity of light in the room, if possible. Write down your observations. Can you suggest some more activities to illustrate the phenomenon further?

The earth is round

Activity VIII:

Take a hollow transparent ball (e.g., of plastic or glass), open it from one side, and fill it with soil so that you can place a strong magnet at its centre. Finally close the opening. Take very small tin pieces and place them on the ball.

Assumpti

The mag is simulating the attraction of gravitational force and the tin pieces are simulating aterial bodies.

Rotate th all slowly. Do the objects on it also rotate? If so, answer the following:

i) Are th eads of small tin bodies in the same direction?
ii) Can a dy geometrically see a far off body?
iii) Is it p ible to notice the curvature of a ball in an infinitesimal area?

Facts:

i) Gravit onal force does not need any material medium for action, i.e., that is, it is a forc at a distance.
ii) Due t ravitational force, bodies try to move towards it.
iii) To ke a body at a distance, some force opposing the gravity is required. If bodies revolv the necessary (centripetal) force acts. Hence bodies at a distance, e.g., in space e in equilibrium if they are rotating about the centre of attraction, i.e., if the lighte dy has a rotational motion about the gravitating body.

Now try uggest the reason for the spinning motions of the heavenly bodies.

Finally, it ld be concluded that calssroom learning should be a dependable fountainhead of ideas insights that provide the bases for a variety of approaches in the teaching-learning cess.

REFERENCES

1. Beauchamp, W.L., Mayfield J.C. and Young West J.Y. (1948), *Everyday Problems in Science.* Toronto, W.J. Gage & Co.
2. Jacobson, W. J., and Tannenbaum. H. E. (1961). *Modern Elementary School Science.* Columbia University: Teachers College Press.
3. Kleinschmidt, H.E. (1950), *How to Turn Ideas into Pictures.* New York: National Publicity Council.
4. Kurana K.J., IAPT Bulletin December 2003, p. 416.
5. Lindgreen, H.C. (1962), *Educational Psychology in the Classroom.* New York: John Wiley.
6. National Curriculum Framework for School Education (2000), New Delhi, NCERT.
7. Raghavan, S.S. (2003), *Project Based Learning in Science: A Handbook for Teachers.* Mysore : Regional Institute of Education (NCERT).
8. Vessel, M.F. (1965), *Elementary School Science Teaching.* New Delhi: Prentice Hall of India Pvt. Ltd.

Table 1: Learning Activities that can Strengthen and Supplement Classroom Teaching

Activity	Teacher's Role	Pupil's Role	Mode of Participation	Expected Learning Outcome	Class	Remarks
Exposition based	Arrange exhibitions and take pupils to see exhibits	Self-motivation curiosity	No limit to the number	Knowledge is free for all	III onwards	Information centre need not be on science only
Community service based	Arrange for 'Shramadan', create an atmosphere of dignity of labour and human friendly environment.	Involve in selfless activities	No limit to the number	Joy of serving others	II onwards	Value Education
Survey based	Organize field trips	Be disciplined	Large group	Group introduction and adjustment with others.	III onwards	Choice of appropriate place
Library based	Expose to variety of literature and how to use library	Select and take notes	Individual and small groups	Use of library resources, referencing ability	IV onwards	For affluent schools
Situation based	Create and, in most cases, encourage students to imagine	Respond to the situation	Depending on the situation	Exposure to real life situations	III onwards	Situation should not lead to disaster

Discussion method	Encourage pupil to participate-provide brain storming questions	Express themselves	Moderate group	one's opinion		seating
Quiz based	Make appropriate quiz questions and arrange quiz	Listen attentively and answer	Several small groups	Participate activitely	IV onwards	Very effectively provide for ready literature
Animation based	Allow children to watch TV	Sum up the learning	Moderate Group	Joyful learning	III onwards	Very costly affair though very effective
Nature based	Expose pupils to nature's manifestations	Gather and sequence the information	No limit to the number	All animates are the creations of nature	I onwards	It is not artificial
Cartoon based	Collect appropriate cartoons and display	Observe minutely	No limit to number	Creative and imaginative skills	V onwards	
Adventure based	Select group and provide opportunity	Do according to physical ability	Select moderate group	Courage	III onwards	Proper precaution for prerequisites

Project based	Select an appropriate topic and distribute questions to different groups according to their ability	Prove their talents	Several small groups	Cooperation, importance of dependency	VI onwards	Time bound proper planning
TV/MM based	Provide infrastructure, schedule of programme	Observe seriously	Moderate group	Looking at the world beyond the four walls of the class	IV onwards	Programmes commensurate with the level be prepared
Internet based	Provide information and facility	Interact with computer and Search	Individual or small group	Acquisition of knowledge	VI onwards	For promising students
Analogy based	Search for analogies which can present abstract concepts	Apply one learning situation to another	No limit to the number	Advantages and limitations of analogies	VI onwards	Analogies do not faithfully cover aspects of a phenomenon

EFFECTS OF COOPERATIVE LEARNING APPROACH IN ENHANCING ACHIEVEMENT AND SOCIABILITY AMONG ELEMENTARY SCHOOL CHILDREN

B.N. PANDA

ABSTRACT

The Cooperative Learning Approach (CLA) has been researched a great deal in different educational settings in the West, especially in the U.S.A. It is often advocated as a learner-controlled interactive alternative to lecture-based teaching that unfortunately has emerged as the norm even in our school system. This study examines the effects of CLA on 72 eighth-grade students of a Kendriya Vidyalaya (Central School) in Bhubaneswar in terms of the enhancement of learners' academic achievement and sociability. For the conduct of the study, a non-randomized pre-test-post-test control group design, a quasi experimental design, was used. Learners were pre-tested as well as post-tested on a criterion achievement test on 'Alternative Sources of Energy' and on a sociometric test on incidence of sociability. The results indicate greater effectiveness of CLA on both the dependent variables. The investigator concludes that with cross-religious group members CLA may be expected to foster communal harmony among students and through them in our strife-torn society.

1.0 INTRODUCTION

One can take the horse to the pond but can't make it drink water. Similarly, unless there is a desire, readiness and active participation of the child in the whole educational process, no learning can take place effectively. None would deny this fact. A passive and non-interactive mode of teaching can create an aversion to school. The act of teaching includes many variables, such as the teacher, the nature of the subject matter, the learner, the learning process and the institutional setting. We now have pedagogic techniques whereby a child can learn by herself with spontaneity and introspection. If the child is directly involved in the learning process, it is noticed that academic learning outcomes are usually superior. The Co-operative learning approach is a major pedagogic breakthrough that can promote active and meaningful learning among students.

The term 'co-operative learning' denotes an instructional method in which students work in small groups (of four to six members each) and are rewarded in some manner for their performance as a group. In this approach opportunities are provided for all learners to participate in and contribute to the learning process. Besides, the students are able to work together for a common goal, motivating themselves by depending on each other, encouraging each other during the task of learning by increasing positive contact among group members. To overcome the difficulties of traditional instruction, investigators like Bloomer (1984), Estep (1992), James (1985), Johnson et al (1999) Jerry (1992), Kalaiyarason and Krishnaraj (2002), Leimatombi (2003), Murmu (2003), Oliver (1990), Panda (2002), Parida (2003), Rai (1993) and Reeves-Keeler (1990) etc. conducted research and found that there exist significant effects of the co-operative learnin approach in enhancing academic achievement of learners.

Since the co-operative learning approach is economical and easier to implement in ou school system, an attempt has been made through this study to find out the effectivenes of this approach in enhancing learners' academic achievement and sociability at th elementary school level.

2.0 OBJECTIVES OF THE STUDY

The following were the objectives of this study:

1. To study the effect of the co-operative learning approach in enhancing the achievemen of class VIII students in science concepts.
2. To study the effect of the co-operative learning approach in enhancing sociability o class VIII students.

3.0 HYPOTHESES OF THE STUDY

H_1. Class VIII students, taught through the cooperative learning approach, will g significantly higher scores as compared to their counterparts taught through th traditional method.

H_2. Class VIII students, taught through the cooperative learning approach, will exhi greater sociability than their counterparts.

4.0 DESIGN OF THE STUDY

In the present study a quasi-experimental design, i.e., non-randomized pre-test-post-te control group design was used

5.0 SAMPLE

Seventy-two class VIII students of sections A and C (36 students from each section) of Kendriya Vidyalaya No. 2, CRPF, Bhubaneswar were selected as sample for the study. The students of section-A formed the experimental group and they were exposed to experimental treatment while the students of section-C formed the control group.

6.0 COMPOSITION OF CO-OPERATIVE TEAMS AND THE EXPERIMENTAL

In the co-operative learning class (the experimental group) the investigator divided the whole class into 9 heterogeneous groups consisting of 4 members each on the basis of their previous science achievement. Each group had one bright, one average and two below average students. A unit of the prescribed syllabus, viz., "Alternative Sources of Energy" was divided into 9 sub-units for which lesson plans and learning materials were developed. For each sub-unit an elaborate plan of action was developed. For example, the first sub-unit was divided into 4 sub-parts and each part was given to one of the four students for preparation. Accordingly, each group was asked to discuss and share information among its members and at the end the group captain of each group was asked to present the key concept/report to the whole class which was followed by a ussion. The researcher also supplemented the ideas and new points not covered by students during the discussion. During the experiment, every care was taken to ure that each of the learners must speak and take part in this discussion. In this way, whole process was repeated for all the sub-units and, wherever necessary, ective measures (formative test and materials) were used.

ore the beginning of the experiment, a criterion achievement test and a sociometric were administered to both the control and the experimental groups to obtain the pre- scores of all students. From the analysis of the pre-test scores it was noticed that mean and the SD of both the groups did not differ significantly. The control group s exposed to the traditional method of instruction throughout the experiments. At the d of the experiment, the researcher administered the same test again to obtain the t-test scores.

RESEARCH TOOLS

e tools were used in the present study. These were:
Teaching learning materials with formative tests for all sub-units;
Criterion achievement test on the topic;
"Alternative Sources of Energy"; and
Non-standardized Sociometric test.

DATA ANALYSIS AND FINDINGS

istics such as mean, SD, and percentage were calculated and the "t" test was loyed for testing significance of mean differences on both the dependent variables. results are presented in Tables 1 and 2.

Table 1: Mean Differences: Academic Achievement

Group	N	M	SD	"t'-ratio	Level of significance
Control	36	8.75	3.14	4.07	0.01
Experimental	36	12.60	4.73		

The control and experimental groups differ significantly in their academic achievement as revealed by the "t"-value. It can therefore be concluded that the co-operative learning approach has a significant edge in enhancing academic performance of learners over the traditional method of instruction. Consequently, the hypothesis was accepted.

Now the question arises: "How does the co-operative learning approach bring about this improvement in learners' academic achievement?" The reasons for the enhanced achievement may be due to independent thinking as well as group thinking, respect for each other's views, active involvement in learning tasks, freedom to explore and the motivation to work hard in order to achieve the common goal through superior group performance.

Table 2: Impact of the Co-operative Learning Approach on Learners' Sociability

Group	Star	Acceptee	Rejectee	Isolated
Control	Pre-test> (19.40%)	12 (33.3%)	13 (36%)	4 (11.8%)
	Post-test> (19.40%)	12 (33.3%)	13 (36%)	4 (11.8%)
Experimental	Pre-test> (19.40%)	14(38.8%)	13(36.0%)	2 (5.5%)
	Post-test>10 (27.7%)	22 (60.9%)	4 (11.8%)	NIL

(Figures in brackets denote % of incidence)

The result shows that there is hardly any significant difference between the pre-test ar post-test sociometric scores of the control group whereas in the co-operative learnir group, the percentage of star acceptees and acceptees categories has increased fro 19.40% to 27.27% and from 38.80% to 60.90% respectively as a result of learni through the co-operative learning approach.

It is further noticed that due to the co-operative learning approach, there is a considerat decrease in the number of rejectees, i.e., from 30.50% to 11.50% after treatment. In t light of the above results, hypothesis H_2 is accepted and it is concluded that the c operative learning approach has a significant effect in enhancing sociability amo learners because students get ample chance to interact with each other and there widen their circle of friendship and develop positive and healthy inter-personal relationshi

9.0 EDUCATIONAL IMPLICATIONS

The co-operative learning approach can keep the learners alert, lively and active throughout the learning process and it provides an opportunity to the learners to share their ideas with others. The co-operative learning approach promotes the attitude of helping each other and helps learners cultivate good inter-personal relationship. It develops critical thinking and social cohesion among the learners. The latter is a dependable indicator of sociability. The results of this study indicate that the co-operative learning approach should be introduced in all classes and educational institutions of our country to help learners enhance their academic achievement. If learner groups in the co-operative learning approach comprise students from different faiths, its use can surely be expected to promote communal harmony as well. These students could later on spread amity and goodwill in our strife-torn society.

REFERENCES

1. Bloomer, A.C. (1984), 'Effect of Co-operative Learning on the Acquisition of Basic Computing Skills: A Pragmatic Approach to Developing Cost-effective Training Methods for the Native Adult Learner'. Dissertation Abstract International, 45(8).

2. step, D.F. (1992), 'An Investigation of the Effect of Direct Instruction and Co-operative Learning Groups on the Performance of Fourth-Grade Readers in Social Studies'. Dissertation Abstract International, 53 (5).
3. ames, L. (1985), 'Effects of a Co-Operative Team Learning Strategy on Student Achievement and Related Components of Classroom Climate. Dissertation Abstract International, 46 (9).
4. erry, C. (1992), 'The Effect of a Co-Operative Learning on College Students' Achievement in Developmental Intermediate Algebra'. Dissertation Abstract International, 53 (4).
5. Johnson, D. (1999), 'Effects of a Co-operative, Competitive and Individualistic Goal Structure on Achievement: A Meta-analysis'. American Journal of Educational Research, 42.
6. Kalaiyarasan, G., and Krishnaraj, R. (2002), 'Effectiveness of a Co-operative Learning Approaches in Learning Science at Secondary Level'. Journal of Educational Research and Extension, 39 (3), 5-13.
7. Leimatombi, S. (2003), 'Relative Effectiveness of Activity Based Learning and Co-operative Learning Strategies on Science Achievements of Elementary School Children'. M.Ed. Dissertation, Bhubaneswar: RIE (NECRT).
8. Murmu, S.K. (2003), 'Relative Effectiveness of Co-operative Learning and Mastery Learning Strategies on Science Achievements of Elementary School Children'. M.Ed. Dissertation, Bhubaneswar: RIE, (NCERT).
9. Oliver, G.W. (1990), 'The Effects of Co-operative Learning in Acquiring Competencies for Computer Applications'. Dissertation Abstract International, 51 (3), P. 826.
10. Panda, B.N. (2003), 'Co-operative Learning', (paper presented in the refresher course in education at Academic Staff College, Lucknow: Lucknow University).
11. Parida, R. (2003), 'Effect of Co-operative Learning in Enhancing Achievement and Sociability of Elementary School Children'. M.Ed. Dissertation. Bhubaneswar: RIE (NCERT).
12. Rai, K. (1993), 'Co-operation Based Learning Strategies among Disabled and Non-disabled Children in Integrated Schools Settings'. Indian Educational Review, 35 (3).
13. Reevees, C.M. (1990), 'A Comparison of Cognitive and Affective Outcomes among Co-operative Learning Teams of Mixed and Uniform Ability'. Dissertation Abstract International, 52 (1).
14. Salvin, R. (1990), Co-operative learning. Englewood Cliffs, N.J: Prentice Hall.
15. Singh, M., and Rai, K. (2002), 'Co-operative learning – An Innovative Learning Strategy'. The Primary Teacher, 27 (4).

TEACHING OF EROSIONAL LANDFORMS MADE BY GEOMORPHOLOGICAL AGENTS (RIVERS AND GLACIERS) AT THE UPPER PRIMARY LEVEL (STD VIII) THROUGH ACTIVITIES – A STUDY

L. SUNDARA MEENAKSHI

ABSTRACT

Geography today covers a vast field and subsumes many branches of scholarship its fold. All geography-related knowledge of the world is essentially the result of th landscape. The geomorphological aspects of physical geography deal with landscap formed by agents like glaciers, underground water, waves and the wind. This pap discusses suitable and effective use of teaching learning materials to solve t problems related to the teaching of erosional landforms of river and glacier. Studen who are active learners, must prepare their lessons in an academically sound mann in particular about the concepts and content and equip themselves for undertaki productive work. This study was carried out with standard VIII students. The sample s was 98 divided into two matched groups, viz., control group and experimental group, the basis of their previous performance. Pre-test and post-test were conducted and ratio was calculated for the data. The results show that there is a significant differen between the means of the experimental and the control groups on the post test a teaching geographical concepts through activities is much more effective than t traditional method of teaching. This study will be useful for teachers, teachers-educato and student-teachers to transform their classroom into a beehive of activity.

"Good education requires good teachers"

1.0 INTRODUCTION

Geography today covers a vast field and comprises many branches of scholarship in its fold. It has tremendous educative value. Geography is dynamic; it is never static. It needs innovative methodologies and new classroom practices to make it interesting and alive in the classroom. By studying geography, children gain the ability to evaluate the earth on which they live, to trace and formulate cause and effect relationships. The geography related knowledge of the world is essentially the result of the study of landscape. The study of physical geography is basic to the understanding of regional, human or economic geography. It deals with the interior of the earth, its surface and crust. Geomorphological aspects in physical geography deal with landscape formed by geomorphological agents like river, glacier, underground water, waves and the wind. The actions of geomorphological agents include erosion, transportation and deposition. There are two major groups of fluvial landforms: erosional landforms and depositional landforms. The landforms formed by geomorphological agents are introduced in the social science syllabus of standard VIII.

The students of standard VIII find it very difficult to understand and remember the landforms formed by different geomorphological agents. In making the students aware of landfo made by geomorphological agents, the teaching-learning materials like block dia ms, clay models, diagram booklets, and programmed learning are used through vative and effective activities. The students, who are the active learners, must pre their lessons in an academically sound manner particularly in terms of content a concepts, and equip themselves for undertaking productive work. This study shows h this can be done.

2.0 S TEMENT OF THE PROBLEM

We know om our past experience that most of the students need a great deal of explanatio for developing proper understanding of the formation of erosional landforms made by ers and glaciers. Hence the investigator decided to conduct research on 'Teaching f Erosional Landforms made by Geomorphological Agents (Rivers and Glaciers) the Upper Primary Stage (standard VIII) through Activities'.

3.0 NE D FOR THE STUDY

"To enric e quality of life, education must generate curiosity, creativity, competence and com sion"

Method o aching cannot be the only factor in solving the problems of our students. No one met is suitable for teaching in all situations, for all subjects and for all learners. Mere ve eaching is not enough to teach geomorphological landforms made by rivers and glac Geomorphological lessons are first introduced in standard VIII. Most of the students not have even a rudimentary idea about the concepts in physical geography. In order overcome this problem, an attempt has been made to find the solution through vities using effective teaching- learning materials for teaching erosional landforms y geomorphological agents, particularly rivers and glaciers.

4.0 SIGNIFICANCE OF THE STUDY

"Geography is a body of knowledge which has great antiquity"

1. The main aim of geography is to help one understand an area as a part of the earth surface in its totality as an animated aspect of nature's creation.
2. The study of landforms (geomorphology) is important for understanding their influence upon human life.
3. Natural features of the earth like mountains, hills, rivers, valleys, plateaus and plains, are to be known as the creation of nature.
4. The preparation of models provides excellent training for the hand and the eye.
5. Aesthetic sense can be developed by encouraging the students to appreciate the wonders of physical landscape and learn about its formation.
6. This study will be useful for teachers in training their students in geography more responsibly and creatively.
7. This study will be helpful to students in supporting their self-learning.

Poor teaching is primarily due to the lack of proper skills in selecting and using more effective teaching methods and learning materials. Hence the investigator decided to conduct an experiment and teach the erosional landforms made by geomorphol ical agents with suitable, effective teaching-learning materials (TLMs) and through act ies.

5.0 SCOPE OF THE STUDY

We live in an age characterized by, **information overload.** Teaching of lanc rms through activities with well-developed TLM can be useful to the students in the fol ving ways:

They can help us:

- know and understand even depositional features of each geomorphological a ent;
- enable the students to identify the erosional landforms;
- provide direct learning to students;
- encourage spirit of exploration among students;
- develop the learners' comprehension ability;
- improve community relationships;
- develop a way for effective team teaching and discussion;
- create interest and promote learners' involvement in the study of landforms m e by geomorphological agents which they often consider to be a hard spot;
- enable the students to distinguish between erosional landforms and depo ional landforms;
- ensure active participation of the students;
- promote self-learning;
- develop drawing skills of the students;
- improve our students' achievement;
- arrange geography exhibitions with various teaching-learning materials;
- inspire students to search for more information about various geographical co epts.

6.0 DELIMITATION OF THE STUDY

Due to time constraints, this study is restricted to the eighth standard students of a government school.

7.0 OBJECTIVE OF THE STUDY

"The goal in education is not to increase the amount of knowledge, but to create the possibilities for a child to invent and discover".

The following were the objectives of the study:

1. To help students identify the erosional landforms made by rivers and glaciers.
2. To enable the students to label erosional landforms made by rivers and glaciers.
3. To help the students understand erosional landforms made by geomorphological agents, i.e., rivers and glaciers with effective TLM through activities.
4. To find out the effectiveness of using TLMs with activities vis-a-vis the traditional method of teaching landforms.

5. To phasize the importance of drawing block diagrams to represent the erosional lan ms made by rivers and glaciers.
6. To able the students to use programmed learning effectively for self-learning and ev tion.

7.0 POTHESES OF THE STUDY

H1: e students of standard VIII make significant improvement in their achievement en taught about erosional landforms through activities.

H2: eaching erosional landforms through activities leads to higher achievement by andard VIII students than teaching through the 'chalk-and-talk' technique.

8.0 SCRIPTION OF TERMS

Innova techniques of teaching are activities which the teacher may design for a partic lesson. These teaching techniques are formulated with the intention of enabl practising teachers to select, adapt, and develop experiment and further impro hese techniques and innovations. To transform a classroom into a teaching-learni boratory, teaching-learning materials provide an important support. To teach the fc tion of a landscape, Block diagrams and programmed learning (linear or branc are very suitable. The investigator framed a number of activities based on block grams to identify, understand, and draw various erosional landforms. Progra ed learning materials were used for learning as well as evaluation.

Block agram: A block diagram is a three dimensional representation of relief features and th geological section underneath the ground. It provides an excellent method of the rep sentation of relief features. An example is given below:

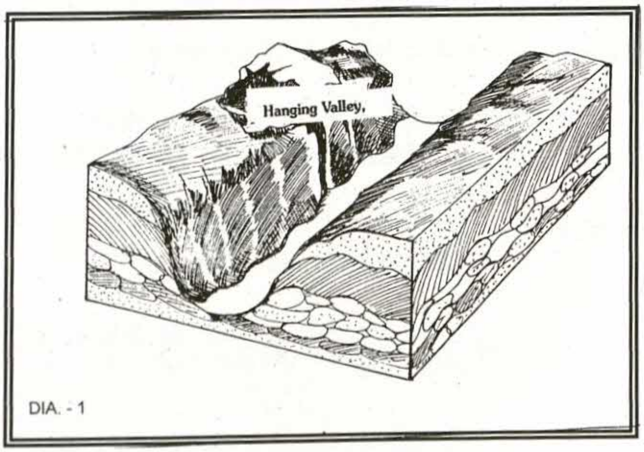


Diagram 1: Landform created by glaciers

✷ Clay Model - A 3-dimarginal model made of clay, it brings a real view of landforms to learners.

- Diagram booklet - A booklet with diagrams of various landforms which make it easy for students to identify various landforms.

- Transparency sheet diagram - A diagram drawn on a transparency sheet which is very useful for developing learners' drawing skills.

- Working Model - A model that is functional and demonstrates parts and process(es). It improves the productive skill and work of students

9.0 METHODOLOGY

This study was carried out on the sample of 98 students of standard VIII. The sample was divided into two matched groups-control group and experimental group with equal numbers of high, average and low achievers on the basis of their performance in the previous tests. The control group was taught by traditional chalk-and-talk method. A pre-test was conducted for both the groups to find out how much they knew and whether they could identify erosional landforms formed by geomorphological agents.

Sr. No.	Geomorphological Agents	Erosional landforms
1.	**Rivers**	Pot holes, 'V'-shaped valleys Meanders, Oxbow lakes
2.	**Glaciers**	'U' shaped valleys, Hanging valleys

The erosional landforms selected for this study were:

1. Pot holes: A round hole worn in rock stream beds by boulders, cobbles or pebbles rotating in the eddies.

2. 'V' shaped valleys: Valleys eroded in the upper and middle courses of rivers

3. Meanders: Pronounced curves or loops in the course of a river channel.

4. Oxbow lakes: Small crescent shaped lakes in a flood plain that originally formed part of a river meander.

5. 'U' shaped valleys: Valleys a glacier erodes at the bottom as well as on the sides; the valleys become wider and 'U' shaped. Such valleys are called 'U' shaped valleys.

6. Hanging valleys:	Tributary valleys that lie above the main valley and are separated from it by steep slopes down. These valleys are common in areas that have been glaciated.

10.0 TOOL

An achievement test was developed by the investigator for both the pre-test and the post-test. The achievement test consisted of three sections, viz., Section A - objective type questions, Section B- diagrammatic questions, and Section C - brief descriptive answer questions.

Scoring of Responses

In Section A, each correct answer was given one mark. In Section B, Part I, each correct answer was given two marks and in Part II full marks (i.e., five marks) were given for neatness, accuracy and correct labelling of landforms. In Section C, each correct answer was given five marks. Thus the achievement test carried 100 marks in all.

The investigator came to understand from the students' pre-test responses that most of the students were not able to identify the landforms of glaciers. They were, however, somewhat familiar with landforms made by rivers, particularly valleys. Only six students were able to give the correct names of the geomorphological agents and their related landforms.

After the analysis of students' responses, the investigator started teaching the experimental group using a variety of classroom activities with specially developed teaching-learning materials. The following seven-step description provides an example of how the experimental group was taught:

Step: I. For raising awareness and generating interest.

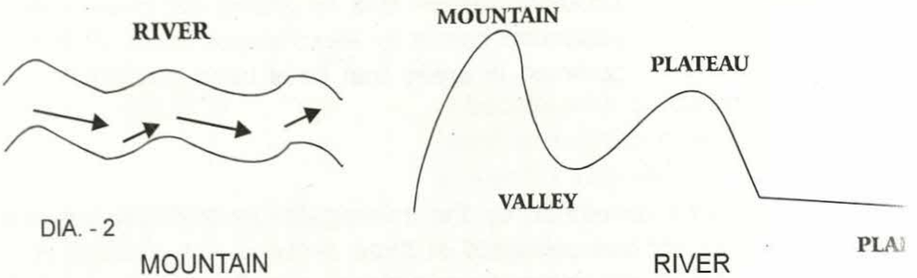
Activity 1: For identifying the landforms, the investigator put a few questions to the students:

1. Where does a river originate from?
2. What is an 'iceberg'?
3. Did you have any bitter experience about cyclones?
4. Have you been to a seashore?
5. Where does the water in wells come from?

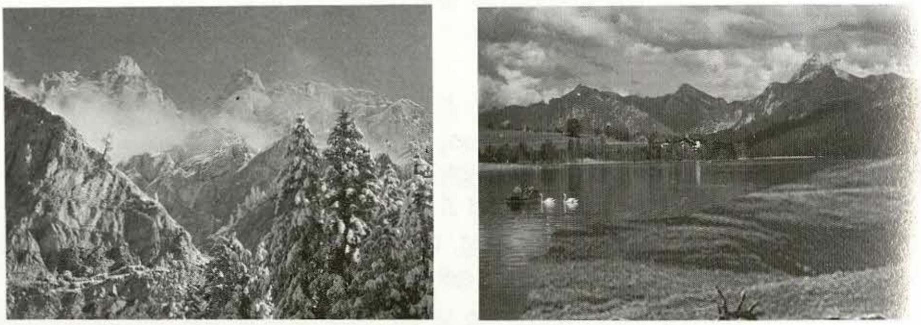
Step: II

Inviting the students to observe and asking them to identify the landforms in Block Diagrams.

Activity 1: The students were asked to observe closely and identify the landforms presented in the block diagrams. The investigator showed the students the pictures of a river, plains, mountains, plateau, valley and lakes and explained that these are the relief features of landforms of the earth.



DIA. - 2



MOUNTAIN RIVER

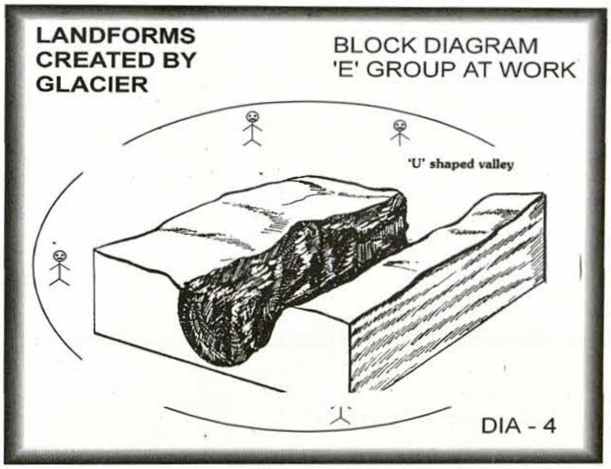
DIA. - 3

Activity 2: All the students were divided into six groups. Block diagrams were given to each group and they were asked to observe and identify the landforms.

Group : A	-	A block diagram showing erosional landforms of a river, i.e., some pot holes.
Group : B	-	A block diagram showing erosional landforms of a river, i.e., a 'V' shaped valley.
Group : C	-	A block diagram showing erosional landforms of a river, i.e., a meander.
Group : D	-	Block diagram showing erosional landforms of river i.e. an ox-bow lake.
Group : E	-	A block diagram showing erosional landforms of a glacier, i.e., a 'U' shaped valley.
Group : F	-	A block diagram showing erosional landforms of a glacier, i.e., a hanging valley.

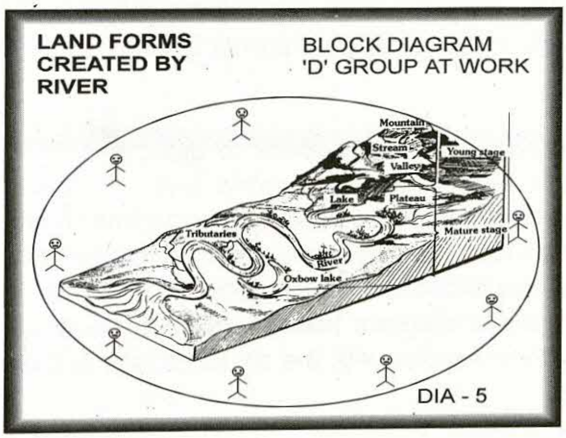
Activity 3: The students from each group were asked to name the erosional landforms of river and glacier shown to them. All the six groups were asked to interchange their block diagrams and were instructed to write down the names of the landforms of river and glacier. The students were able to identify pot holes, valleys, meanders, ox-bow lakes, 'U' shaped valleys and hanging valleys. Those students who gave maximum number of the names of written landforms were appreciated by the investigator in the class.

Activity 4: The students were then asked to draw a number of block diagrams. A block diagram is a three-dimensional view of a landform and creates a real representation of the landform.



DIA - 4

The activity at this stage made the students visibly happy; they were involved and fully absorbed in all these activities very enthusiastically.



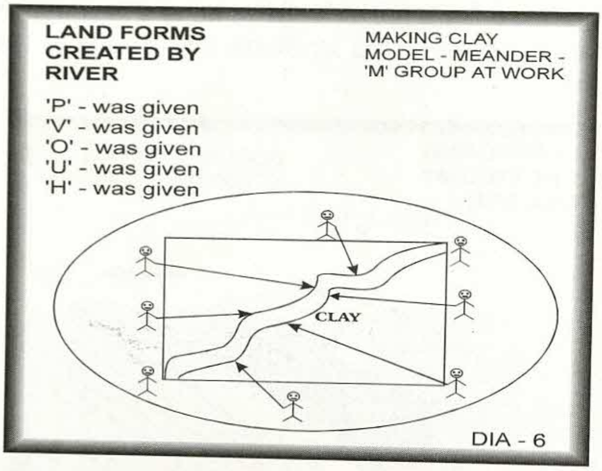
DIA - 5

Step: III

Making students prepare clay models of erosional landforms made by rivers and glaciers.

Activity 1: The students were provided with clay and asked to observe the block diagrams and were instructed to make with clay the landforms shown in the block diagrams.

Activity 2: The students were divided into six groups and each group was given some clay. The groups were named as Pot Group (P), Valley Group (V) Meander Group (M), Oxbow lake Group (O) 'U' shaped valley Group (U), and Hanging valley Group (H). This activity kept the students busy for one hour, but the 'H' Group did their work very slowly. Hence the investigator told the members of 'H' group to make the Hanging valley clearly. As a result of performing these two activities, the students were able to develop their skill of making objects and landforms; they also developed creativity in some measure through these activities.



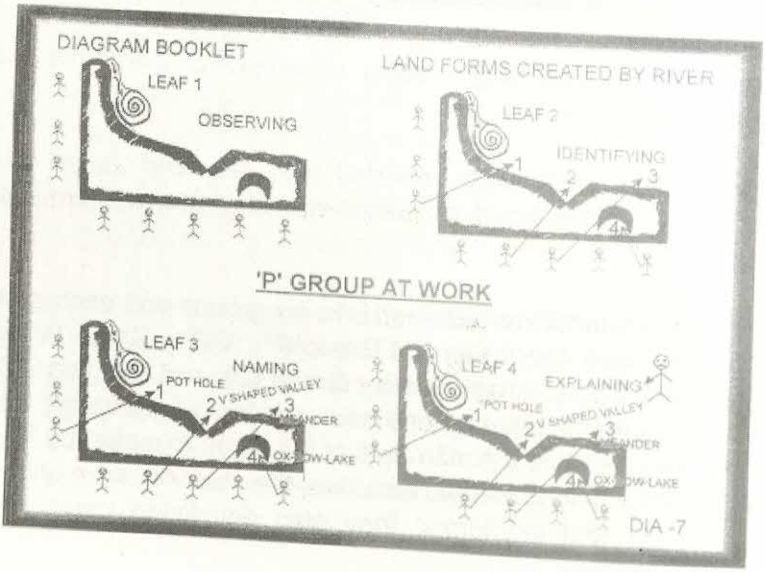
Step: IV

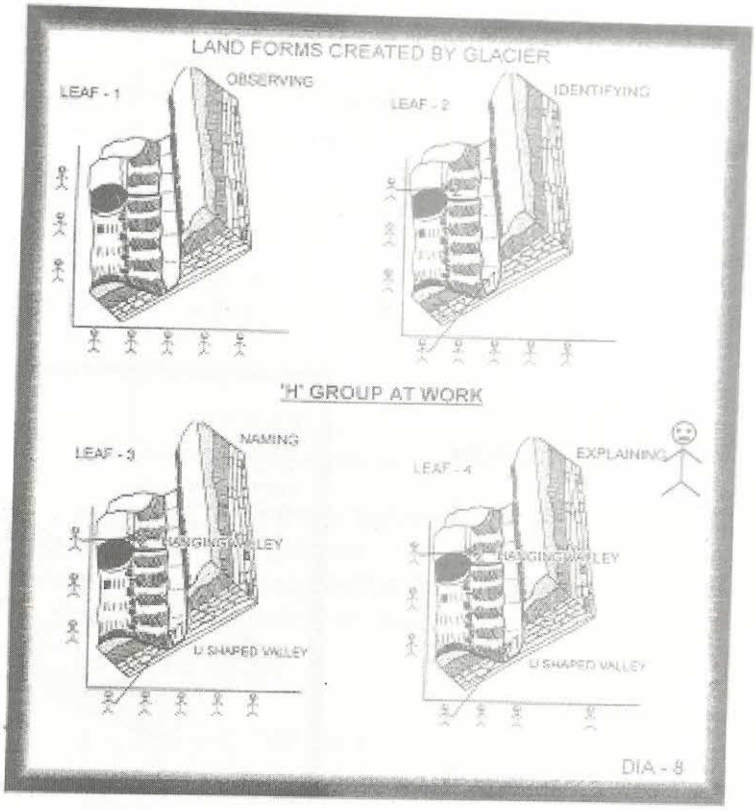
"Drawing inferences is the heart of inquiry".

Enabling the students to identify and correctly label the landforms given in the diagram booklet

Activity 1: 'P', 'V', 'M', 'O', 'U' and 'H' groups were provided with diagram booklets. They were instructed to identify, correctly label and explain the formation of landforms made by rivers and glaciers. Four leaves of the diagram booklet for each landform were given to each group.

Activity 2: The six groups were given time to discuss and to label the landforms correctly in the diagram booklet on the second leaf. For the third leaf, they were instructed to write the correct names of the landforms and, finally, they were asked to explain in writing on the fourth leaf the formation of erosional landforms made by rivers and glaciers. One representative from each group was asked to explain the structure of the landforms with a set of diagram booklet given to them. As a result of activity 1 and 2, all the students were familiar with the six landforms and were able to explain the formation of landforms.





ctivity 3: Under this activity one student from each group was called upon to explain ally what one of the other group had done. The group whose activity was described a member of the other group was asked to update or provide correction in the oral escription given to the class. For example, a student from 'H' would explain the work one by 'U' or 'P' and so on.

Landforms Created by A River	Landforms created by A Glacier
'V' – was given	'V' – was given
'O' – was given	'O' – was given
'M' – was given	'P' – was given
'U' – was given	'M' – was given
'H' – was given	'U' – was given
'P' – was given	'H' – was given

These activities generated a lot of interest and helped the groups update the information that each student in the class had about erosional landforms. The students would never forget these concepts in life.

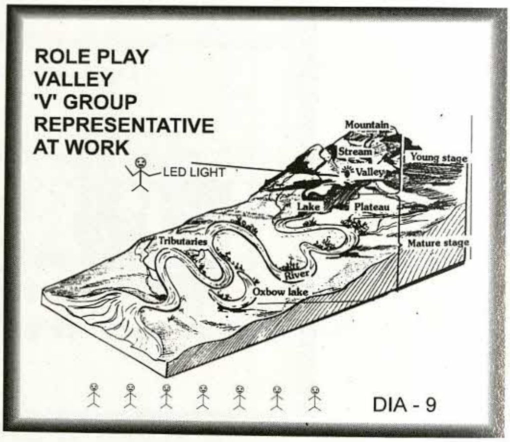
Step: V

Making the students describe with working models the erosional landforms of geomorphological agents.

Activity 1: The investigator instructed one student from each group to ask question about the names of the landforms and the names of the related geomorphologic agents. The group which gave an answer was given a mark. This activity was rotate among all the six groups and answers about the erosional landforms made by the geomorphological agents were elicited in a comprehensive manner.

Activity 2: The investigator called one student from each group to explain through 'Ro play 'the formation of erosional landforms with the help of the working model. Th investigator gave the names of the specific erosional landforms for explaining th formation of erosional landforms. The titles given to the students were:

1. Pot holes in the mountainous region
2. 'V' shaped valleys
3. Course of the river
4. Separating parts of the meander
5. 'U' shaped valley
6. Tributary valley



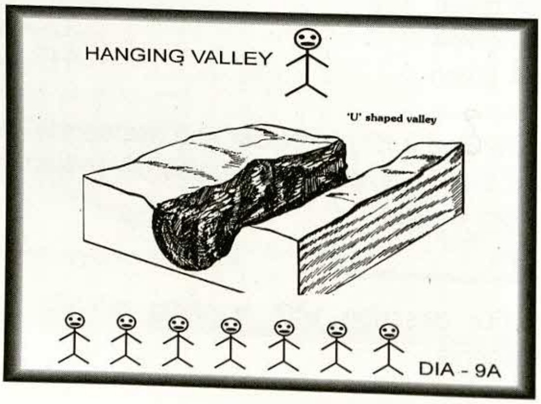
DIA - 9

These activities created self-confidence among the students and paved the way for the self-learning.

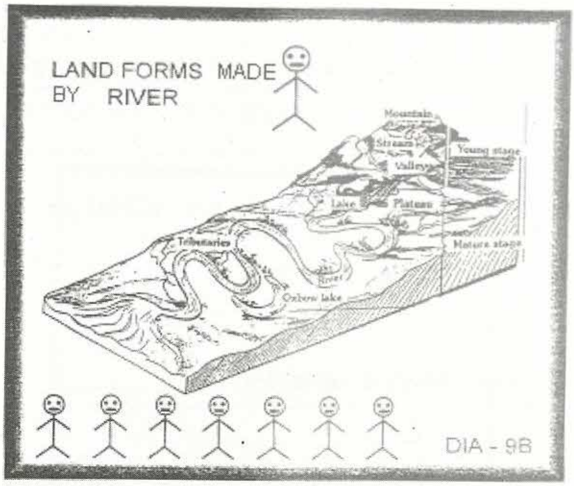
Step: VI (Reinforcement)

Reinforcing diagrams through the transparency sheet the students' concepts of th formation of various erosional landforms made by rivers and glaciers.

Activity 1 (Visual Memory): The investigator showed the students drawing of various erosional landforms on transparency sheets. Before the investigator could say anything, the students were able to identify the landforms and explain their formation. The investigator instructed the students to write about the formation of erosional landforms in their note books. Most students were able to write about the formation of the erosional landforms made by rivers and glaciers.



DIA - 9A



Activity 2: The investigator asked the students to identify and draw various erosional landforms made by rivers and glaciers. They could complete the task without any hesitation and without errors. These reinforcement activities made the students curious about learning depositional landforms of rivers and glaciers.

Step: VII (Evaluation)

"A good question is a problem half solved".

Enabling the students through programmed learning to evaluate for themselves their learning about the formation of erosional landforms made by rivers and glaciers.

Activity 1: All the students were divided into four groups of 12 – 13 each and each group was given twelve frames in a sequential order. Each student was allowed to read one frame at a time about the given information in the frame and put questions to the next student. One after another, all the twelve frames were read by the students to their peers. This activity was carried out by the other three groups also in the same manner. It took nearly an hour and all the students were able to understand the formation of erosional landforms very clearly. The frames used for this activity are reproduced below:

FRAME: 1
Small streams flowing along the mountain slope join together and form a ____________.

RIVER

FRAME: 2
The river thus formed flows through a s......... s......... valley and reaches the plateau.

STEEP SIDED

FRAME: 3
A round hole worn in rock stream beds by a boulder, cobbles and pebbles rotating in eddies is called a(n) ______________.

POTHOLE

FRAME: 4
The river erode valley in upper and middle course of a river is called a(n) ___________.

'V' SHPAED VALLEY

FRAME: 5

The pronounced curves or loops in the course of a river channel are called a(n) ______________.

MEANDERS

FRAME: 6

A small crescent shaped lake in a flood plain that originally formed part of a river is known as a(n) ___________________.

OX-BOW LAKE

FRAME:7

The huge ice block in very slow motion is called a(n) ______________.

GLACIER

FRAME: 8

A valley glacier erodes the bottom as well as the sides of the valley. After a considerable time, it becomes wider and 'U" shaped. Such a valley is called a(n) __________.

'U' SHAPED VALLEY

FRAME: 9

The valley of a tributary that joins the main valley at a higher level will appear as if it were hanging. Such a valley is called a(n) ________________.

HANGING VALLEY

EVALUATION

FRAME: 10

1. Small streams joined together and flowing along the mountain slope are called ____________.
2. The valley through which a river flows in a mountain is ___________________.
3. The pebbles caught in the eddies make holes in the rock bed of the river which are called __________.
4. A river eroded valley is called ____________.
5. A curve or loop in the course of the river is called __________.

FRME : 11

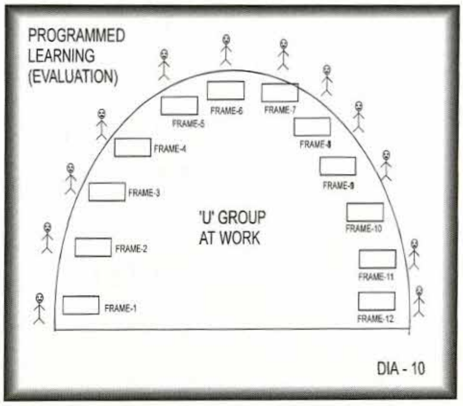
1. A crescent shaped lake is called ___________.
2. A huge block of slowly moving ice is called ____________.
3. the glacier eroded valley is known as _____________.
4. The valley made by a tributary is called ______________.

FRAME: 12

1. a river
2. steep sided
3. pot holes
4. a 'V' shaped valley
5. a meander
6. on ox-bow lake
7. a glacier
8. a 'U' shaped valley
9. a hanging valley

Activity 2: (Quiz)

The investigator put questions to the students of the four groups. The questions were taken from FRAME – 1 To FRAME – 11. Each correct answer was given a mark. The group which got maximum marks was appreciated and rewarded for its performance.



These activities familiarized the students with three process simultaneously, viz., teaching, learning and evaluation.

Post-Test: The post-test was administered to both the control group and the experimental group. The post-test was the achievement test administered earlier as the pre-test and the responses given on it were scored in the same manner after the end of the teaching sessions.

11.0 DATA ANALYSIS

The pre-test and post-test scores of the control and the experimental groups were tabulated and their descriptive statistics were calculated and 't' ratios on difference between the mean scores were determined using the following formula:

$$t = \frac{M_1 \sim M_2}{\sqrt{S_1^2/N_1 + S_2^2/N_2}}$$

Table 1: Significance of Mean Difference:

'Pre-test x Post-test' Experimental Group

Test	N	Mean	S.D	Calculated 't' value	Remarks
Pre-test	49	31	113.3	24.276	Significant 0.01 level
Post-test	49	84	114.9		

Table 1 shows that the calculated 't' value of 24.076 is much higher than the critical value for significance at 0.01 level. It is concluded that there is a significant difference between the pre-test and the post-test mean scores of the experimental group. H_1 is consequently accepted.

Table 2: Significance of the Post-test Mean Difference: Experimental and Control Groups

Group	N	Mean	S.D	Calculated 't' value	Remarks
Control	49	74	76.4	6.091	Significant 0.01 level
Experimental	49	84	114.9		

It is obvious from Table 2 that the calculated 't' value of 6.091 is more than the critical value at 0.01 level. It is therefore concluded that there is significant mean difference between the control and experimental groups on the post-tests. H_2 is, consequently accepted.

12.0 FINDINGS

1. There is a significant difference between the mean scores on the pre-test and the post-test of the experimental group. This is the result of teaching through activities using effective and suitable teaching-learning materials.

2. There is a significant difference between the means of the experimental and control groups in the post-tests. This proves that the teaching of erosional landforms made by geomorphological agents through activities with suitable TLMs is more effective than the 'chalk and talk' technique.
3. The students who learnt through activities showed more heightened interest in learning geographical concepts than those students who learnt through 'chalk-and-talk'.

13.0 IMPLICATIONS FOR IMPROVED TEACHING OF GEOGRAPHY

The results of this study have some significant implications for improved teaching of geography which are listed below:

1. The use of teaching aids is not enough to explain the concepts in geography It is necessary that these concepts be explained through activities.
2. Training in activity-based teaching should be organized for the teachers of standards VI, VII, VIII by the DIET'S, specially for those who teach geography.
3. The Education for All (EFA) scheme depends on the quality of education for its success. The teacher-educators in resource centres need to organize training in activity-based teaching.
4. Lessons on hard sports can be organized effectively if appropriate TLMs are used along with activities.

Th DTE student-teachers need to be exposed to geographical journals, magazines, pa rs etc. on a regular basis to enthuse them to update their knowledge of content and to able them to use innovative pedagogic techniques.

REFERENCES

1. NCERT (2002), *The Primary Teacher*, VOL XXVII No.3, New Delhi: NCERT.
2. Tamil Nadu Book Society, *Science for standard VII*. Chennai
3. Das Gupta, A., and Kapoor, A.N. (1977), *Principles of Physical Geography*, (7th ed). New Delhi: S.Chand and Co.
4. DPEP Calling – October 2000.
5. Harry, Chand. (1990), Techniques *of Teaching*. New Delhi: Ashish Publishing House.
6. Strabler, N., and Strabler, H. (1976), *Elements of Physical Geography* (3rd ed.) U.S.A.
7. Verma, O.P., and Vedanayagam, E.G. (1991), *Geography Teaching* (4th ed.). New Delhi: Sterling.
8. Zoe, A. Thralls. (1958), *The Teaching of Geography*. New Delhi, Eurasia.

"ON-THE-SPOT OBSERVATION" – AN INNOVATIVE STRATEGY IN TEACHING-LEARNING OF ENGLISH LANGUAGE

K. CHELLAMANI AND S. MOHAN

ABSTRACT

This study is concerned with a special category of candidates who enrolled themselves for Diploma in Teacher Education. These candidates had completed their teacher training almost a decade ago but were not given certificates. After a break of ten years in their education, they took up a teacher-training course; hence they constituted a special category of trainees. The study based on "On-the-Spot Observation " led to an innovative strategy in teaching and learning of English. The investigators developed a customized curriculum comprising hands-on experience on dictionary use, practice sessions on supra-segmental features, activity sessions on reading aloud and demonstration on speech functions as its major focus for developing linguistic competence. A pretest-posttest single group design was used for this study. The results revealed that the strategy was quite effective in attaining its objectives and led to higher motivation and significant development of linguistic competence.

1.0 INTRODUCTION

"The destiny of India is being shaped inside the classrooms" is the famous quote from the Education Commission Report (1964-66). The Commission as convinced about the importance of primary education which can contribute to higher productivity and earnings of our country. This does not mean that education should be measured solely in terms of years of enrolment; it should rightly be assessed in terms of what students learn, retain and apply in life. Teachers are usually critical about their students' learning. Competency-based learning can result through the successful teaching experiences of the teachers. The pre-service and in-service education in teacher education institutions needs to be focused on qualitative improvement of primary education. Despite merit-based admissions in DIETs, sometimes it is essential to admit candidates with a long break in their studies. On such occasions, the plight of the candidates is indeed pathetic. They neither fit into the group of regular trainees nor do they turn out to be successful teachers. Yet, they are the future teachers. Therefore, it is necessary to design an innovative teaching-learning process to build up their capacity so that they may help elementary stage students learn more and perform better in achievement tests.

2.0 BACKGROUND OF THE SPECIAL CATEGORY

In addition to the merit based admissions, a number of 'affected candidates' were taken into DIETs in the academic session 2002-2003 as 'Special Category' candidates. These special category candidates had had their teacher education ten years ago, but they were not issued certificates because of various reasons. These special candidates therefore had ten years of break in their education. Most of them did not continue their education. Moreover, the jobs they took up were not related to teaching. Hence, they had atrophy in learning over a long period. They did not remember much about content or me dology. Teaching English language to such candidates was indeed going to be a He ean task for any teacher educator.

After mpleting their teacher training course in two years, these candidates would expe o be posted in government schools as secondary grade teachers and they woul each upto standard VIII. Most of them could very well get appointments in matri ation schools. These teachers need to have fairly good linguistic competence in or to be average language teachers.

3.0 LANGUAGE LEARNING IN SCHOOLS

Upto he 1980s language learning in schools was formal and was intended mostly for offic purposes. Learning English language these days has grown in importance bec se it is the main language for communication both within and outside India. Lea ng life-oriented language skills in English is now a major need of students, esp ally in urban schools, and in order to achieve this objective, the English language cur ulum is usually based on the communicative approach and real-life situations. 'Fu ion' and 'Notion' consequently play an important role in the preparation of English lan age curricula.

So r as learning the English language is concerned, at elementary level the student is ex ted to

- nderstand simple English statements when spoken;
- nderstand questions, short talks and short passages when read out (all within his xperience);
- rame simple questions relating to his experiences and answer such questions orally;
- read with fluency (both aloud and silently) and understand simple passages in English within the vocabulary and structural range of the prescribed syllabus; and
- express himself in writing with reasonable accuracy within the range of the syllabus or topics within his experience.

At the secondary level, and especially when a student completes the secondary level schooling, he is expected to

- frame sensible questions in English and answer them clearly;
- organize his ideas in a coherent manner for oral and written presentation in English;
- read silently and understand the main idea(s) in an English text within the linguistic range of the prescribed syllabus;
- write simple letters (personal as well as official) in English; and
- write simple dialogues in English.

Scope

As English is generally a second language for Indian students, they need more exposure to the language. Neither the family atmosphere nor the neighbourhood can provide the expected level and quantum of exposure to these students. Hence, school is the only place where students can get properly acquainted with English. In order to manage this process of teaching English and properly to guide students in developing performative mastery of English language, teacher trainees need to strengthen and enrich their competence in English language. In other words, the trainee teachers need to develop 'communicative competence' in English language so that in turn they may enable their students to develop their (i.e. students') communicative competence in English

According to most ELT experts, 'communicative competence' includes:

(a) knowledge of the grammar and vocabulary of the language;
(b) knowledge of the rules of speaking and social communication;
(c) knowledge of how to use and respond to different types of speech acts, such as requests, apologies, thanks, etc.; and
d) knowledge of how to use the language in a socially appropriate manner.

The investigators through interaction with the special batch students/teacher trainees sensed their anxiety and discomfort. They expressed their inability to understand even simple English utterances. When the first lesson in their English syllabus on English phonology was taken, it sounded all Greek to them. It was the responsibility of the authors to allay their fears and develop their self-confidence instead. It was found that these trainees were not able to use the English Source Book developed by the DTE. Hence, the English language teaching classes for these trainees were designed using an innovative strategy that focussed on developing their linguistic competence

4.0 OBJECTIVES OF THE STUDY

- To study the effects of the innovative on-the-spot observation strategy in developing linguistic competence in English among special batch DTE students; and
- To increase learner motivation and involvement in learning activities.

5.0 TITLE

The title of this study was 'On-the-Spot Observation – An Innovative Strategy in Teaching and Learning of English Language'.

The expression 'On-the-Spot Observation' needs to be explained briefly. It is common knowledge that when a person is engaged in the act of observation, he pays attention to what is being observed by him and its significant details. When engaged in 'close observation', one pays particular attention to all the details and their sequence. When a person who is able to carry out 'close observation' becomes a participant in a teaching-learning process, he can carry out 'on-the spot observation' of what is happening around him and also of the processes going on within him. In other words, the person carries out 'on-the-spot observation' of what is going on around him as well as within him. Such learners, other things being equal, can prove to be better learners and can support their learning.

The content for this experiment included (a) sounds of English and their symbols, (b) syllable and its types, (c) stress and intonation in spoken English, (d) identification of various types of English sentences, and (e) language functions in the context of English language. It can easily be seen that the strategy used by the investigators had greater focus on oral skills in English language learning.

6.0 SAMPLE

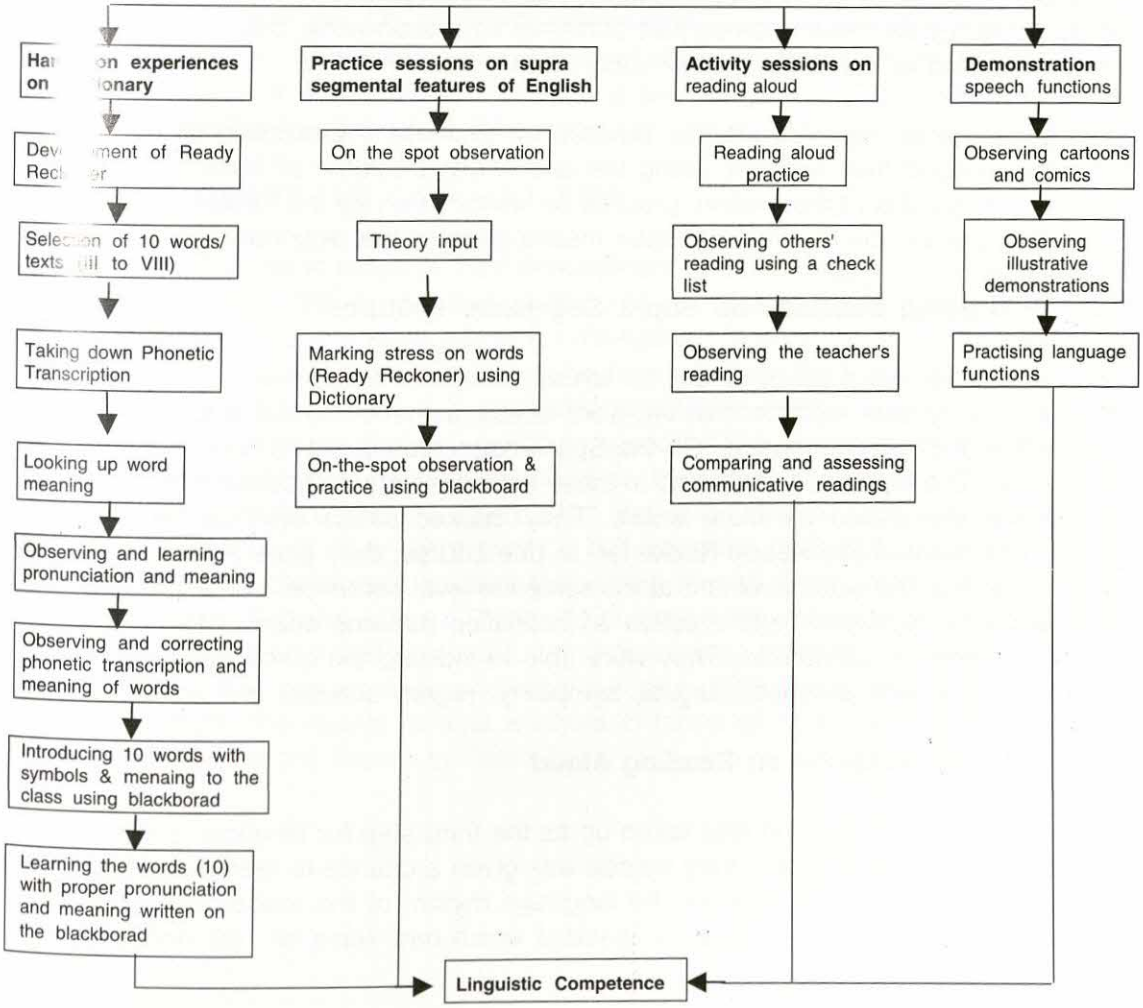
Fift pecial Batch Diploma in Teacher Education students who were enrolled in the Ele ntary Teacher Education Programme after a lapse of ten years.

7.0 METHODOLOGY

Sin he sample trainees had had a long break of almost a decade in their education, it w decided that four techniques should be prominent in instructional planning. These we (a) Hands-on practice sessions on dictionary use, (b) Practice sessions on ma ring supra-segmental features of English, (c) Activity sessions on reading aloud, anc d) Demonstration on speech functions. It was expected that the use of these tec iques would make the ELT programme for sample trainees more comprehensive as ell as more balanced. This was felt necessary because the major focus of the pre ribed source book 'English Language Education' is on developing linguistic cor etence, particularly in written English, and ELT methodology. The flowchart of act ies in this study is given in Table 1.

Th study was based on 'the "pretest-posttest single group design". The pretest was us as posttest as well and it consisted of 5 sub-tests. The posttest also had a 20-ite Self-Appraisal Proforma. These instruments are given in Appendix 'A'.

Table 1: Flow Chart of Instructional Activities


Ha on experiences on onary
Dev ment of Ready Rec er
Sele n of 10 words/ texts il to VIII)
Taking down Phonetic Transcription
Looking up word meaning
Observing and learning pronunciation and meaning
Observing and correcting phonetic transcription and meaning of words
Introducing 10 words with symbols & menaing to the class using blackborad
Learning the words (10) with proper pronunciation and meaning written on the blackborad
Practice sessions on supra segmental features of English
On the spot observation
Theory input
Marking stress on words (Ready Reckoner) using Dictionary
On-the-spot observation & practice using blackboard
Activity sessions on reading aloud
Reading aloud practice
Observing others' reading using a check list
Observing the teacher's reading
Comparing and assessing communicative readings
Demonstration speech functions
Observing cartoons and comics
Observing illustrative demonstrations
Practising language functions
Linguistic Competence

7.1 Hands on Experience on Dictionary

Teaching practice at school is a part of teacher education curriculum. Unle the teacher trainees have mastery over the school textbook, they cannot be succe ul in their teaching. Hence, as the first step, students were directed to familiarize ther lves with the words in the textbooks. In order to provide manageable quantum of p tice, every student was asked to select 10 words from the textbooks right from tl third standard to the eighth standard. These words were listed in their 'Ready Re oner' notebook along with their phonetic transcription and meaning. Once the ready re oner was ready, it was circulated among other trainees for correction as correcting hers' work can also result in learning.

Since learning can be more effective if organized in short-duration sessions, very trainee was asked to take turn and write ten words along with their phonetic trans ption on the blackboard before the start of the English class. During the English peric they learn these words with their correct pronunciation. They observed, practised an wrote these words and their transcription in their note books. After the 'speak aloud' p ctice, the trainees' pronunciation was checked at random.

In this way, the trainees had hands-on practice sessions on dictionary for finc g out pronunciation and meanings. They were further asked to specify the contextual r aning of words out of those given in the dictionary. Each trainee checked and correct sixty words of his/her six classmates as part of his/her correction work. Besides, each inee had another set of words for his/her daily class practice.

Thus each trainee received intense practice on phonetic transcription of word their pronunciation and their meaning using the dectionary. Besides, all trainees wer iven frequent 'On-the-Spot Observation' practice on words given by the faculty. They re to transcribe, pronounce and find out their meanings from the dictionary.

7.2 Practising Sessions on Supra Segmental Features

Now the trainees were asked to look for stress marks in the dictionary. They were given the theory of syllable, syllable division, word stress, sentence stress, and the intonation and rhythm of English language. 'On-the-Spot Observation' practice was given using the blackboard. The trainees participated in these activities very enthusiastically. They were competitive and asked for more words. They marked stress symbols on the words selected by them in the Ready Reckoner. In due course, they were able to distinguish meaning both at the word level and at the sentence level sentence. In the same manner, 'On-the-Spot Observation' and practice on intonation patterns enabled them to identify the 'feeling tone' in utterances. They were able to indicate the emotions of the speaker such as excitement, surprise, disgust, sympathy, regret, concern and so on.

7.3 Activity Sessions on Reading Aloud

Practice on rhythmic reading was taken up as the third step for developing the trainees' communicative competence. Every trainee was given a chance to read aloud a passage and others were asked to observe the language rhythm of the reader in reading these passages aloud. They were given a checklist which had items on (a) word stress (b) pauses (c) intonation (d) stress position on content words and structure words in sentences (e) proper pronunciation (f) any addition of words by the trainees, and (g) meaningful reading.

Every time soon after the students had completed their 'reading aloud' practice, the investigator gave a demonstration of how reading aloud should ideally be done by the teacher. Then the trainees compared both the reading aloud by the investigator and that by the trainee and assessed each in terms of communicative reading. Besides, their listening comprehension was also assessed through text-based questions. Through this innovative strategy, the trainees were able to differentiate among instructions, directions, announcements, invitations, report, etc.

7.4 Demonstration on Speech Functions

The importance of language functions in everyday life was emphasized through illustrative demonstration on greetings, invitations, asking for information, thanking, requesting, seeking permission, etc. The trainees were motivated to read and analyze cartoons and comics where language functions are abundantly illustrated.

Individual practice through role-play was also organized in the class. Besides these, they prepared dialogues for classroom communicative functions. Each one of them wrote these functions on the blackboard so that others could read out and practise them. Through this 'On-the-Spot Observation' and practice the trainees were able to collect quite a large number of dialogues in a variety of contexts. Moreover, the trainees were provided a collection of classroom instructions and directions. Thus, they had ample practice on developing all the four language skills simultaneously.

8.0 ASSESSMENT AND DATA ANALYSIS

The trainees' progress in terms of their development of better linguistic competence was assessed through a test at the end of the training. The test comprised 5 types of listening sub-tests, viz., (1) statements, (2) dialogues, (3) short story, (4) mini-talk, and (5) identification of cued words from the given homophones. Each sub-test consisted of a short listening session followed by multiple choice items that were to be answered by the trainees. Each correct answer was given a score. The scores were computed and compared. The trainees were also assessed on their phonological and morphological skills and their comprehension ability. The trainees showed considerable overall improvement. Moreover, they were given a self-appraisal proforma comprising twenty statements. These statements were of the yes/no format. Each 'Yes' had a score of 1 while 'No' had 0 (zero) score. These statements were meant to assess trainees' reference skill, pronunciation skill, communicative competence and listening comprehension. The results were analyzed in terms of percentages and comparisons were established. The results of data analysis in terms of mean gain scores on three major competencies are shown in Table 2.

Table 2: Gains in Learning (%) Competencies

	Pronunciation	Morphological skill	Listening Comprehension	Reference Skills	Over
Pretest	37.69	53.86	38.93	37.65	42.
Posttest	54.65	72.06	75.60	71.00	68.
Mean Gain	16.96	18.20	36.67	33.35	26.

It is obvious from Table 2 that the 'On-the-Spot Observation' strategy was effe ve in bringing about considerable improvement in trainees' overall communicative comp ence as well as the four major dimensions of communicative competence addressed t ough this study.

9.0 CONCLUSION

This study was obviously conducted on students who differed a great deal from gular under-20 candidates who enroll themselves in the Diploma in Teacher E ation Programme. The trainees had had almost a decade long break in their educa and therefore the investigators had to devise a special, almost a customized stra y for them. Language being a skill-dominant subject, its non-use is bound to lea o its atrophy. The investigators, therefore, focussed on developing and up-grac the linguistic competence of these trainees. Since the strategy used in this study a ed at involving trainees in taking up the responsibility for their learning through close -the-spot observation of performance, their own as well as their colleagues', their a ntion to the details, even minute ones improved and their knowledge and linguistic com ence shot up.

This study offers some lessons to all teacher educators which may be summe up as follows:

- All learners differ from one another and this is true of learner groups as well. Teacher educators, therefore, need to develop customized teaching-learning strategies for their students. Using these strategies will enable them to ensure greater learner involvement and higher levels of motivation.
- Teaching-learning strategies in order to be optimally effective need to have differential focus on various aspects of curriculum and different learning outcomes. Skills and knowledge components in which students are deficient need greater focus, while those on which they are average or above average may need much less focus.
- Periodic monitoring of student performance and proper assessment of their learning can enable teacher educators to devise mid-session corrective inputs for the teaching-learning process.
- While teaching is both an art and a science, teacher education is more of a science than art. Therefore teacher educators in order to become optimally effective need to develop a researchers' approach to their job. For this, they need to plan more systematically and become more objective in the implementation of their plans.

REFERENCES

1. Cl amani, K. (2001), 'Efficacy of Psycholinguistic Intervention and Metacognition on R ing Comprehension among High School Entrants', *Alagappa University,* ur blished doctoral thesis.
2. E sh Language Education, Source Book for the Diploma in Teacher Education, 2(Chennai. Tamilnadu Text Book Corporation.
3. F ll, R.H., and Vincent, M. (1986), *Essential Language Teaching Skills.* New York: M llan.
4. G nwood, Jean. (1997), Activity *Box: A Resource Book for Teachers of Young S ents.* London: Cambridge University Press.
5. M d, A., and Rubin, D.L. (2002), 'Assessing Listening and Speaking Skills'. *ERIC D est.*
6. S lagh, Rixon. (1986), *Developing Listening Skills.* New York: McMillan.

Appendix – A
Pretest & Posttest
Listening Comprehension Test

SUB TEST: 1

Dire ns: In this part of the test, you will hear a brief statement. Each statement will be spoken only ce. The statement does not appear in your test booklet. When you have heard the stat nt, select the answer nearest in meaning to what you have heard. Record your answer on the wer sheet.

1. (Mrs. Jones has run out of coffee.)
   a. Mrs. Jones went out to buy coffee.
   b. Mrs. Jones needs some coffee.
   c. Mrs. Jones has lots of coffee.
   d. Mrs. Jones has a little coffee.

2. (I'm going to do away with these clothes.)
   a. I'm going to wear them.
   b. I'm going to keep them.
   c. I'm going to wash them.
   d. I'm going to discard them.

3. (The teacher called off the test completely.)
   a. She gave the test.
   b. She postponed the test.
   c. She cancelled the test.
   d. She gave the test orally.

4. (When I told Mark the news, he blew up.)
   a. Mark became curious.
   b. Mark became worried.
   c. Mark became angry.
   d. Mark became nervous.

5. (The sole survivor of the plane crash was Mary Peters.)
   a. All of the passengers were killed.
   b. Mary Peters was the only passenger killed.
   c. None of the passengers were killed.
   d. Mary Peters was the only passenger who was not killed.

6. (The Company turned down Bill's offer.)
   a. They offered him a job.
   b. They rejected his offer.
   c. They accepted his offer.
   d. They discussed his offer.

7. (Mary's suggestion to the teacher was out of the question.)
   a. Mary asked the teacher a question.
   b. Mary's idea was reasonable.
   c. Mary's question was off the subject.
   d. Mary's idea was impossible.

8. (John has three books and a couple of pencils.)
   a. John has as many books as pencils.
   b. John has more pencils than books.
   c. John has fewer pencils than books.
   d. John has fewer books than pencils.

9. (If your plane leaves at eight, you must arrive twenty minutes ahead of time to check your luggage.)
   a. You should arrive at 8.00.
   b. You should arrive at 8.20.
   c. You should arrive 7.20.
   d. You should arrive 7.40.

10. (On the trip to New York, John and Bill took turns driving.)
   a. The boys took a wrong turn during the trip.
   b. Bill did most of the driving during the trip.
   c. John drove Bill to New York.
   d. The Boy's divided the driving time between them.

SUB TEST: 2

Here is a converşation between a man and a woman. You will be asked a question by a third voice about what was said. You will hear the question only once and you must choose the answer from among the given choices. Record your answer on the answer sheet.

1. (Man): I'm sorry, Madam. The train is somewhat behind schedule. Take a seat, and I'll inform you as soon as we know something definite.

(woman): Thank you, I'll just sit here and read a magazine in the meantime.

(3rd voice): What can you conclude about the train from the conversation?

a. The train is crowded.
b. The train is late.
c. The train is empty.
d. The train is on time.

SUB TEST: 3

Directions: Good Morning. I'd like to welcome you to your first yoga class. Before we begin our exercise, it is important that we understand a few facts about yoga. First of all, it is not a religion. Yoga is a way of life and can serve only to improve your present way of life. Yoga is an exact science and a delicate art.

Secondly, be as methodical and mechanical as possible. Never tug, strain, or pull strenuously. Forcing will cause your body to resist and will actually slow down or even prevent your progress. Go gently. Stretch up to the point where it would start to hurt, and then stop immediately. The key is proper breathing through the nostrils with the mouth shut. Many times it is best to practise alone in a well-ventilated room, preferably wearing little or no clothing. Never practise on a full stomach because an empty one permits greater flexibility. Exercise will benefit your general health. Yoga cannot add or subtract pounds from your figure; only eating more or less food, that is, increasing or decreasing your caloric intake, can do that. Always remember that diet affects weight, while exercise affects shape. Neither can do the job of the other. Now, let's begin with our first yoga exercise.

1. (According to the speaker, what is one thing that yoga should not be classified as)
   a. A delicate art.
   b. A religion.
   c. An exact science.
   d. A way of life.

2. (What happens if a person practises yoga on a full stomach?)
   a. His general health will benefit greatly.
   b. He will begin to breathe more regularly.
   c. His flexibility will decrease.
   d. He will lose weight readily.
3. (When a person practising a particular yoga exercise has stretched his body to the point where it begins to hurt, what should he do?)
   a. Begin breathing through the nostrils.
   b. Slow down somewhat, but continue straining.
   c. Stop the particular exercise at once.
   d. Close his mouth immediately.

SUB TEST: 4

Listen to the story – (The TRAP) and answer the following:

I. Match column A with column B to make complete sentences.

COLUMN A	**COLUMN B**
1. The wolf had a fight	come to see you.
2. Only the fox has not	to be mean again.
3. I was trying to find	with the fox.
4. He decided never	a cure for you.

II Fun with Language

A lion ROARS. A cat MEWS. A heart BEATs. Match the sounds with the creatures and things that make them.

BIRD	JACKAL	TRUMPET	DOG	BELL
blows	rings	howls	chirps	barks

SUB TEST: 5

There are words listed under column A and column B. Listen to the words which would be read out at random. Write A or B according to the words read out.

COLUMN A	COLUMN B
1. cart	7. court
2. part	8. port
3. hark	9. hawk
4. card	10. cord
5. darn	11. dawn
6. tart	12. taught.

SELF APPRAISAL PROFORMA

Directions:

Read the statements given below and put a (√) either under 'Yes' or 'No'.

Sr. No.	**Statements**	**Yes/No**
1.	It is interesting to imitate phonic sounds.	
2.	I am enthusiastic about framing words on the given sounds.	
3.	The English class is always interesting for me.	
4.	I am interested to do word puzzles in the class.	
5.	I develop confidence whenever I imitate and frame the given structure.	
6.	I am able to read my message written anywhere.	
7.	I use the dictionary to find out the meaning of new words.	
8.	I am able to pronounce new words using the dictionary.	
9.	I am able to pronounce words with proper stress.	
10.	I am able to give proper pause in long sentences.	
11.	I am able to differentiate the meanings of different formations of the same word.	
12.	I am able to identify my pronunciation difficulties.	
13.	I enjoy referring to books in the library.	
14.	I am able to jot down the main points in a passage.	
15.	I am able to group words according to their word-final sounds like /t/ and /d/.	
16.	I am able to build words using the given phonetic symbols.	
17.	I am able to do syllabic division for given words.	
18.	I am able to identify the vowel sounds in each word.	
19.	I am able to read words according to the phonetic symbols given in the dictionary.	
20.	I am able to read the given passage meaningfully.	

12

TEACHING WITHOUT LECTURING: AN APPROACH FOR TEACHING ENGLISH PRONUNCIATION

LAKH NARAIN PANDEY

ABSTRACT

English occupies an important place in our socio-economic life and because of this, it has been introduced as a curricular area at the primary stage of schooling. In the state of Madhya Pradesh, it was introduced from Standard I with effect from academic session 2001-02. English differs from most other living languages because of its non-phonemic characteristics; it is not written the way it is spoken. This creates additional difficulties for most learners. Very often one finds that the primary teacher entrusted with the task of teaching English has sub-standard pronunciation. This study was conceptualized with a view to developing an activity-based approach to the teaching of spoken English and, particularly, to develop correct pronunciation of words commonly used in the prescribed English Readers for Standards I-V. Thirty eight second year student trainees of a DIET in Madhya Pradesh were selected as the study sample for a Pre-test-Post-test single group design study spread over three months. Performance in terms of correct pronunciation of 100 words listed in the Pronunciation Learning Achievement Test (PLAT), a tool developed by the investigator, was assessed before the start and at the conclusion of the study. The transcription of the correct pronunciation of these words using IPA symbols was an additional task for the post-test. Data were analyzed with the help of the 't-ratio' test. The results indicated that the student-trainees made significant progress. This demonstrated the effectiveness of the approach. However, the trainees' performance in terms of transcription using the IPA symbols was somewhat lower than their oral performance.

1.0 INTRODUCTION

Language plays a very important social function because it is mainly used for human communication. A language can be used in two forms-spoken or written, for the purpose of communication. The medium of speech is more important for day-to-day communication than the medium of writing. This is because spoken language is the primary form in the history of any language. Language evolves through the medium of speech. As individuals we learn to speak long before we learn to write. Speech as a medium of communication is used the world over far more frequently than the medium of writing.

There doesn't exist any language whose spoken form can be learnt directly from its written form. This is because no language is written exactly as it is spoken. English is notorious for its differences between the way it is spoken and the way it is written. In English there is no one-to-one correspondence between spelling and sound. The learner of a language like English cannot be sure of how to pronounce a word that he encounters for the first time in the written form; nor can he be sure of how a new word heard by him would be spelt.

The need for learning spoken English has grown enormously all over the world during the last decades. People are no longer content with acquiring only reading and writing skills of the language; they want to be able to speak it too and speak it in a way that they are understood not only by their next door neighbours (with whom they can use the local language anyway), but also by the English speaking persons from other countries. This desire to be able to speak English intelligibly and acceptably is clearly seen in the rapid rise of the number of English medium schools in recent years.

A large majority of our school teachers themselves cannot speak English the way it should be spoken. Many learners therefore, have to learn spoken English as a special area. The strong urge and motivation for this can lead to success in learning spoken English.

2.0 NEED AND IMPORTANCE

English was introduced at the primary stage in Standard III onwards in the year 1999 in Madhya Pradesh. On popular demand, it has now been introduced in Standard I itself since the academic session 2001-2002. ENGLISH READER, a need-based course book was developed for Hindi medium primary school children who come from a diverse cultural, linguistic and social background. These children have reasonably well developed speech skills in their mother tongue often flavoured with a local or regional dialect when they join school. Teachers must be aware that in making an effort to introduce these children to English, they are trying to teach them a language which is totally new to them. These children do not get many opportunities at home or in their community to interact with others in English. Hence, the onus of teaching English falls on the teacher who should try to create as natural a learning environment in the classroom as he/she can.

The feedback received from different in-service teacher training programmes and academic monitoring of what goes on in schools under teaching of English disclosed the fact to the investigator that in spite of attending a number of training programmes on English language teaching, teachers are unable to teach English efficiently at the primary stage. The teacher responsible for teaching English often feels uneasy while teaching because of his sub-standard pronunciation. He does not know the correct pronunciation of many a word. Whatever he learnt from his teacher is invariably accepted by him as 'the' correct pronunciation. He teaches his students exactly the way he was taught as a student. He does not know whether this is correct or incorrect. This uncertainty may create many problems for his learners later on. This is the case with our regular trainees in Diploma in Education (D.Ed.) programme. They pronounce many common English words incorrectly. As 'English and its Methods of Teaching' is one of the compulsory papers prescribed for them and because testing of spoken English is not included in the examination scheme, it is all the more important to develop the ability of speaking intelligible and acceptable English among the trainees. It was with this purpose that the investigator decided to carry out an experiment of introducing trainees to correct pronunciation of English with the help of the basic sound symbols.

3.0 OBJECTIVES

This study was carried out with the following objectives:

- To make the trainees conversant with phonetic sound symbols and their transcription.
- To enable them to transcribe sounds correctly and reproduce them.
- To enable them to confirm the correctness of the pronunciation of new or difficult words with the help of a dictionary and pronounce these.
- To develop speaking skill in them through Communicative Language Teaching (CLT).
- To encourage and motivate them for self-learning utilizing self instructional materials and audio cassettes.
- To enable them to become good students and good teachers of English.

4.0 SAMPLE SIZE

The sample consisted of 38 seconds year trainees enrolled in the Diploma in Education (D.Ed.) programme in DIET, Rewa (Madhya Pradesh). As these trainees were from different parts of the district and had poor background of English, their pronunciation of English words was quite sub-standard.

5.0 METHODOLOGY

Trainees were made well conversant with the sound symbols of English (Received Pronunciation) in their written and spoken forms. A list of 1000 commonly used words transcribed along with their meanings was distributed to them for practice in the class and at home as well. The list comprised words chosen from ENGLISH READER, the English textbooks prescribed for Standards I to V in Govt. primary schools of Madhya Pradesh. The investigator first provided them with a model of correctly articulated sounds in context (e.g./p/ as in 'poor', 'apt', and 'ape') and the trainees reproduced it first in chorus, then in small groups, and finally individually. Different sounds were practised intensively by the trainees. Besides, audio cassettes specially prepared on pronunciation and conversation in different situations were made available and utilized as supplementary self-instructional material for individual and group practice in the institute.

The teaching learning process was made interesting through the playway method. Word games like rhyming words, word ladder, picking the odd man out in pronunciation, identifying words in pictures, word puzzles, joining letters to make new words, Antyakshari, Bingo and pronunciation-contests were used to hold learners' motivation and provide practice to them. Continuous evaluation was a regular feature of the methodology even during practice.

6.0 IDENTIFICATION OF HARDSPOTS

Hardspots leading to incorrect pronunciation in English in Rewa region were identified. Factors other than mother tongue interference were observed and follow up of the faulty pronunciation of their teachers, and trainees' unfamiliarity with phonetic sound symbols and their transcription was also noted. Some of the sounds often mispronounced by the trainees are listed below.

Table 1 : Phonetic Sounds Mispronounced by the Trainees during Pre-Test

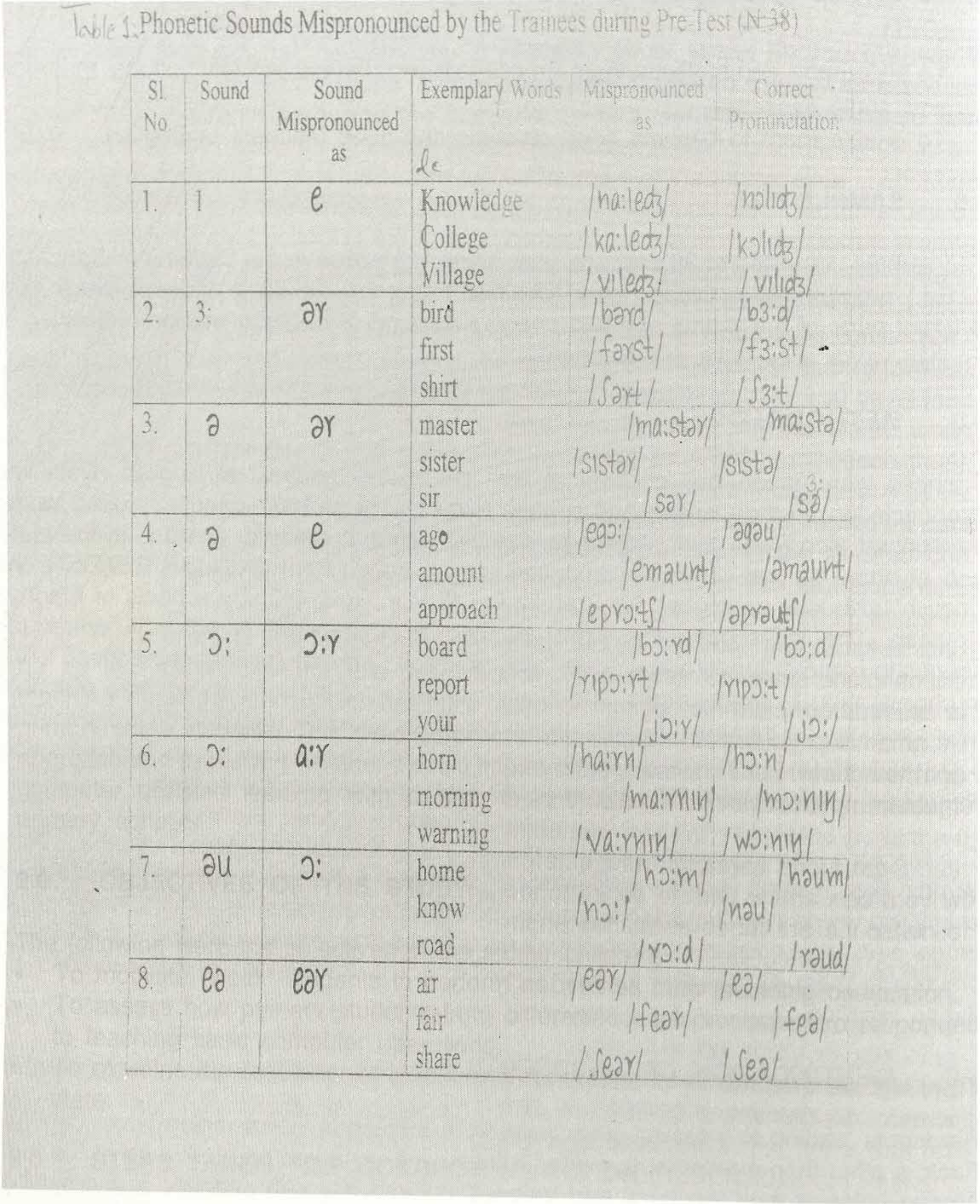


Table 1. Phonetic Sounds Mispronounced by the Trainees during Pre-Test (N=38)

Sl. No.	Sound	Sound Mispronounced as	Exemplary Words	Mispronounced as	Correct Pronunciation
1.	I	e	Knowledge College Village	/na:ledʒ/ /ka:ledʒ/ /viledʒ/	/nɔlidʒ/ /kɔlidʒ/ /vilidʒ/
2.	3:	ər	bird first shirt	/bərd/ /fərst/ /ʃərt/	/bɜ:d/ /fɜ:st/ /ʃɜ:t/
3.	ə	ər	master sister sir	/ma:stər/ /sistər/ /sər/	/ma:stə/ /sistə/ ɜ: /sə/
4.	ə	e	ago amount approach	/egɔ:/ /emaunt/ /eprɔ:tʃ/	/əgəu/ /əmaunt/ /əprəutʃ/
5.	ɔ:	ɔ:r	board report your	/bɔ:rd/ /ripɔ:rt/ /jɔ:r/	/bɔ:d/ /ripɔ:t/ /jɔ:/
6.	ɔ:	a:r	horn morning warning	/ha:rn/ /ma:rniŋ/ /va:rniŋ/	/hɔ:n/ /mɔ:niŋ/ /wɔ:niŋ/
7.	əu	ɔ:	home know road	/hɔ:m/ /nɔ:/ /rɔ:d/	/həum/ /nəu/ /rəud/
8.	eə	eər	air fair share	/eər/ /feər/ /ʃeər/	/eə/ /feə/ /ʃeə/

Sl. No.	Sound	Sound Mispronounced as	Exemplary Words	Mispronounced as	Correct Pronunciation
9.	eɪ	e:	name play say	/ne:m/ /ple:/ /se:/	/neɪm/ /pleɪ/ /seɪ/
10.	ɔɪ	va:j	boy enjoy moist	/bva:j/ /ɪndʒva:j/ /mva:jst/	/bɔɪ/ /ɪndʒɔɪ/ /mɔɪst/
11	ʊə	ʊər	poor tour	/pʊər/ /tʊər/	/pʊə/ /tʊə/
12	aɪə	ajər	fire higher tire	/fajər/ /hajər/ /tajər/	/faɪə/ /haɪə/ /taɪə/
13	aʊə	avər	flower hour sour	/flavər/ /avər/ /savər/	/flaʊə/ /aʊə/ /saʊə/
14	f	फ (in Hindi)	fine friend	/फाइन/fain/ /फ्रेंड/ frend/	/faɪn/ /frend/
15	v	b$_h$	van very village	/b$_h$æn/ /b$_h$erɪ/ /b$_h$ɪledʒ/	/væn/ /verɪ/ /vɪlɪdʒ/
16	s	ɪs	scholar school station	/ɪska:lər/ /ɪsku:l/ /ɪste:ʃn/	/skɒlə/ /sku:l/ /steɪʃn/
17	z	dʒ	fuse music zoo	/fju:dʒ/ /mju:dʒɪk/ /dʒu:/	/fju:z/ /mju:zɪk/ /zu:/
18	ʃ	s	ship sugar sure	/sɪp/ /sugər/ /sjɔ:r/	/ʃɪp/ /ʃugə/ /ʃɔ:/
19	w	hw	whale what why	/hwe:l/ /hwa:t/ /hwaɪ/	/weɪl/. /wɒt/ /waɪ/
20	w	v	wicket window work	/vɪket/ /vɪndɔ:/ /vərk/	/wɪkɪt/ /wɪndəu/ /wɜ:k/

7.0 TOOLS AND TECHNIQUES

The assessment of the trainees' achievement in terms of learning pronunciation was done with the help of the Pronunciation Learning Achievement Test (PLAT) developed by the investigator (See Appendix I). PLAT consisted of 100 words (test items) including mono-syllabic, bi-syllabic and tri-syllabic words. Space for transcribing the words was provided in the test paper itself. The paper was of one-hour duration and had an aggregate of 100 marks.

Since the subjects did not know the phonetic symbols of the sounds of English in the beginning, PLAT was administered orally as the pre-test. Trainees' responses in terms of pronunciation were transcribed by the investigator himself. After the introduction of the phonetic sound symbols and their ample practice for more than three months, the same tool was administered orally and in the written form for the post-test to assess the effectiveness of the methodology used. The oral reproduction was recorded and transcribed by the investigator for comparing their oral performance with their written performance.

8.0 ANALYSES AND INTERPRETATION OF DATA

The trainees' achievement in terms of learning correct pronunciation was assessed in both oral and written forms. The data collected with the help of PLAT for trainees in pre-test and post-test were statistically analyzed. Comparison of their achievement on these tests was done as under:

(i) Comparison of Oral Performance in Pre-test and Post-test

Comparing the oral performance of the trainees on pre-test and post-test, it was found that their mean scores were 18.86 and 68.23 and S.D. was 5.43 and 12.00 respectively. The obtained 't' value is 23.73 which is far greater than the critical 't' value of 2.71 for df = 37 at 0.01 level. Therefore, the null hypothesis of zero mean difference in performance on the pre-test and post-test was rejected and it was concluded that trainees had made substantial progress in learning correct pronunciation during the period between the two tests.

(ii) Comparison of Oral and Written Performance in Pre-test and Post-test

Comparing the oral and written performance of trainees in correct pronunciation on pre-test and post-test, a highly significant difference was found with 18.86 and 60.05 as mean scores alongwith 5.43 and 10.87 as S.D. respectively. The obtained 't' value of 23.73 for df = 37 at 0.01 level revealed a significant difference between oral and written performance of trainees on both the tests.

(iii) Comparison of Oral and Written Achievements in Post-test

Comparing the oral and written performance of trainees in terms of correct pronunciation on post-test, a very significant difference was observed in favour of oral performance. The obtained 't' value of 13.41 for df = 37 at .01 level reveals a highly significant difference in their oral and written performance. Their mean scores, S.D. and 't' values are given in the Table below.

Table 2: Comparison of Overall Oral and Written Performance of Trainees in Pre-test and Post-tests (N = 38)

Sr. No.	Test	Mean	SD	't' Value	Inference
1.	Pre-test (Oral)	18.86	5.43	23.73	P<.01
	Post-test (Oral)	68.23	12.00		Significant
2.	Pre-test (Oral)	18.86	5.43	21.45	P<.01
	Post-test (Written)	60.05	10.87		Significant
3.	Post-test (Oral)	68.23	12.00	13.41	P<.01
	Post-test (Written)	60.05	10.87		Significant

It is evident from the Table that the approach adopted in the classroom for teaching the correct pronunciation of selected English words was quite practicable, interesting and successful as trainees were able to show substantial progress in terms of correct pronunciation from the pretest to the post-test.

9.0 FINDINGS

The major findings of the study and their educational implications are as under:

- During the entire experiment, the trainees were highly motivated and interested in learning the phonetic sound symbols, a totally new area of study for them.
- Highly significant difference was found in the oral performance of the trainees as a result of the treatment.
- The overall achievement of the trainees was found to be significantly higher at the end of the treatment (written test) compared to that before the start of the treatment.
- As a result of the treatment, the trainees were more skilled in oral performance than in written performance, in terms of correct pronunciation of the selected English words.
- It was also observed that as a result of the use of playway activities for teaching English pronunciation, trainees' hesitation and shyness in speaking English decreased considerably during the course of the treatment.

10.0 CONCLUSION

It is evident from the findings of the study that the pronunciation of English can be tau and learnt in the class efficiently and successfully. Quality instruction and progress in trainees' performance in terms of correct pronunciation ensured greater participa and motivation on the part of the trainees. It is hoped that if teachers themselves sp English correctly in the classroom and act as a facilitator emphasising learning ra than teaching, through a learner-centered approach, achieving mastery level in term correct pronunciation can be possible.

REFERENCES

1. Balasubramanian, T. (1995), *A Textbook of English Phonetics.* Madras: MacMil India.
2. Natraj, Geetha. (1994), *English at Work.* Madras: Oxford University Press.
3. Vaid, D. D. (1994), *How to Speak and Write Better English.* New Delhi: Orient Paperbacks.

APPENDIX - I
DISTRICT INSTITUTE OF EDUCATION AND TRAINING, REWA (M.P.)

Pronunciation Learning Achievement Test (PLAT)

PRE-TEST/POST-TEST

Timer: 1 Hour Oral/Written Max. Marks: 100

Sl. No.	Word	Transcription	Sl. No.	Word	Transcription
1.	ant	....	2.	action	....
3.	arrange	....	4.	aeroplane	....
5.	breakfast	....	6.	biscuit	....
7.	brain	....	8.	basket	....
9.	cupboard	....	10.	complete	....
11.	crane	....	12.	children	....
13.	desert	....	14.	decoration	....
15.	drink	....	16.	discipline	....
17.	enjoy	....	18.	elephant	....
19.	excuse	....	20.	eight	....
21.	fish	....	22.	friend	....
23.	flower	....	24.	function	....
25.	grain	....	26.	grow	....
27.	garbage	....	28.	gate	....
29.	happy	....	30.	headache	....
31.	horse	....	32.	hungry	....
33.	invite	....	34.	hungry	....

35.	information	....	36.	inside	....
37.	join	....	38.	jump	....
39.	joy	....	40.	journey	....
41.	kitten	....	42.	king	....
43.	know	....	44.	knife	....
45.	luggage	....	46.	leopard	....
47.	learn	....	48.	lock	....
49.	morning	....	50.	mango	....
51.	master	....	52.	monkey	....
53.	needle	....	54.	noble	....
55.	notice	....	56.	name	....
57.	orange	....	58.	onion	....
59.	once	....	60.	open	....
61.	people	....	62.	playground	....
63.	performance	....	64.	puzzle	....
65.	queen	....	66.	quilt	....
67.	question	....	68.	quarter	....
69.	rabbit	....	70.	rainbow	....
71.	rank	....	72.	road	....
73.	school	....	74.	sentence	....
75.	shirt	....	76.	sugar	....
77.	tomato	....	78.	tortoise	....
79.	temple	....	80.	twinkle	....
81.	toast	....	82.	uncle	....
83.	untidy	....	84.	umbrella	....
85.	uniform	....	86.	van	....
87.	voice	....	88.	village	....
89.	window	....	90.	wonder	....
91.	women	....	92.	write	....
93.	year	....	94.	yacht	....
95.	yellow	....	96.	younger	....
97.	zero	....	98.	zip	....
99.	zebra	....	100.	zoo	....

Date:..........................

....

Signature of the Trainee Signature of the Investigator

Name:...............................

D.Ed. II year

13

TEACHING READING ENGLISH TO POOR READERS OF PRIMARY CLASSES THROUGH BILINGUAL METHOD - AN EMPIRICAL STUDY

C. JEYALAKSHMI

> ***"The teaching of English or any language as foreign language may be described as a process of creating bilinguals"*** **- Catford**
>
> ***Catford***

ABSTRACT

Students in mother-tongue medium primary schools often find it difficult to develop their oral reading skills in English. The Major factors responsible for this are mother-tongue interference, low exposure to English, and sometimes, the poor spoken English of the teachers. This study, based on the bilingual approach and a judicious use of the comparative analysis of sounds in English and Tamil, is an attempt to help the below-average primary stage students (Standards IV and V) develop their oral reading skills in English. The investigator classified English consonants into four categories in relation to Tamil sounds. Teaching of each English sound (vowel as well as consonant) through its nearest equivalent in Tamil, followed by ample practice in its correct articulation and decoding words with the particular sound, was the main strategy used by the investigator. Using a pretest-post-test single group design, the investigator demonstrates that the use of bilingual approach and systematic teaching of English sounds through Tamil sounds is indeed quite helpful to these students in developing their oral reading skills in English.

1.0 INTRODUCTION

Our educational system is examination-oriented and, consequently, undue attention is given to getting through the exam instead of developing competencies among the learners. English is treated and taught as a content subject rather than as a skill subject in most primary schools. The English alphabet is introduced merely as a group of the letters, not their sounds. Mere teaching of the alphabet will not enable learners to read English. Language is a system of sounds related to a system of meanings. Therefore, the teaching of English sounds needs to be given priority for developing learners' reading skills in English at the initial stage.

2.0 PERCEPTION AND ANALYSIS OF THE PROBLEM

During discussions with the primary school teachers of the Tamil medium schools, the investigator learnt that reading English is a problem for many primary school students and their poor reading skills affect their achievement in English.

'Learning to read English' is bound to create quite a few problems for the students of the Tamil medium primary schools. This is so because the children are familiar with the sounds of their first language, Tamil, when they join the school. In Tamil, the orthographic

symbols and their sounds are almost identical. Each letter in Tamil stands for a particular sound at all places except for a few exceptions, e.g.,

ம் / t / படம் / d /
ம் / p / பந்தம் / b /
ம் / k / கடம் / g /

Thus, the pronunciation of a word in Tamil is the sum total of the pronunciation of the sounds of its letters. English is not spoken the way it is written. More than one sound of some English letters and the changes in their sound because of their context confuse learners. For example, the first letter of the English alphabet 'a' may have as many as eight or more sounds as represented by the following phonetic symbols /e/ /a:/ / o: / ei / / e" / /" / /க/ / i /. Similarly, letter 'c' can have a soft sound as in 'cite' or a hard sound as in 'cat'.

Another difficulty experienced by the students is due to more than one letter representing just one sound as, in 'cough' or because some letters are silent in certain contexts, e.g., knife, talk, write, lamb.

In English, a consonant letter may represent a vowel or a consonant sound (as in 'yes', and 'eye') and the doubling of vowel letters may represent two different vowel sounds in different contexts as in 'booth' and 'book'. Yet another problem is posed by diphthongs. Young learners are often confused by these idiosyncracies of English.

As a result of these peculiar features of English, reading becomes a difficult task for students in primary schools. Those who cannot decode orthographic symbols into their sounds, find reading a real problem because **'learning to read'** orally is learning primarily to decode the written letters into sounds. No wonder many students lose interest in reading English because learning any language skill depends on the feeling of success or failure that the learners experience repeatedly.

3.0 OTHER PROBABLE CAUSES OF THE PROBLEM

The characteristics of the sound system of English basically differ from those of Tamil at the primary stage in the following ways:

- English is introduced in standard III as a second language in Tamil medium schools.
- Most of the children in the Tamil medium schools have exposure to English only within the four walls of their classrooms, that too for a limited period allotted for teaching of English.
- Not all parents are able to guide their children in English.
- As Tamil is the language of social interaction outside the classroom, children lack the requisite exposure for the reinforcement of their skill of learning English acquired in the classroom.
- Getting their doubts about the spelling-sound relationship in English cleared and developing dependable reading skills in English is a source of anxiety for many.
- With a large number of students in the classroom and with a fixed syllabus to be covered within a limited period, the teachers are not able to pay special individual attention to their students.

4.0 ROLE OF TAMIL SOUNDS IN TEACHING ENGLISH SOUNDS

A comparative study of Tamil and English sounds will be useful for the teaching English sounds to the students and this will develop their reading skills in Eng Students are very familiar with the symbols and sounds of Tamil and this can be hi useful in helping them learn most sounds of English. Hence an attempt here is m through the bilingual method to introduce the primary sounds of the alphabet in Eng to facilitate reading. The target group being the students of primary schools, they can be expected to be thoroughly conversant with the sound system of English. They ne to be sensitized to the peculiarities of the sound system of English, so that they may f at ease while learning to read English orally. It is therefore necessary for the teacher plan and design classroom instruction, and base it on the students' needs a capabilities. This would hold good even for teaching the sounds of English to t students of primary schools.

5.0 OBJECTIVES OF THE STUDY

- To introduce the primary school children to the English vowel and conson sounds.
- To develop the students' confidence in reading isolated words.
- To develop their interest in correct articulation of the English monothongs wh reading and producing correct consonant sounds.
- To encourage the students to practise English sounds by themselves in their fr time.
- To enable the students to reasonably master the letter-sound relationships in Engli for single letters as well as letter-clusters.

6.0 HYPOTHESIS

Teaching the letter-sound relationships in English through bi-lingual method increases the reading skills of the students of Standards IV and V in the Tamil-medium primary schools.

7.0 METHODOLOGY

7.1 Sample

Forty students of standards IV and V, with below average reading skills in English, were selected as the study sample from a Tamil-medium school, viz., Panchayat Union School, Palayampatti.

7.2 Procedure

(1).

A pretest was conducted to assess the students' reading competency. They were shown pictures from the already taught lessons from their English textbooks and asked to name the objects given in the pictures. A list of 30 objects named by the students was written on the blackboard (Appendix-1) and they were asked to read these words aloud one by one.

None of the forty students was able to read all the words. Five students were not able to read even a single word. Twenty students were able to read only two words each. Ten students were able to read six words each. Five students were able to read 11 - 15 words each. Ten students were unable to distinguish between 'p' and 'b'; 'c' and 'g'; and 't' and 'd'. When asked, 11 students were unable even to locate the letters representing consonant sounds in the words. The average (%) score of the sample was 13 only.

Incidentally, even though the students were expected to be familiar with Tamil letters and their sounds, 28 students were unable to articulate correctly the allophones of the consonants in Tamil when these and the vowels were combined.

(2).

The students were introduced to and taught the sounds of English letters for 30 hours in the classroom spread over a month using the following steps.

Step I : Identification of vowels and consonants in Tamil
Vowels: அ, ஆ, இ, ஈ, உ, ஊ, எ, ஏ, ஐ, ஒ, ஓ,ஔ
Consonants : க, ங, ச, ஞ, ட, ண, த, ந, ப, ம, ய, ர, ல, வ, ள, ழ, ற, ன.

Step II: Practice in forming allophones of the consonants with the given vowels; e.g.,

க் + அ = க   க் + உ = கு   க் + ஐ = கை
க் + ஆ = கா   க் + ஊ = கூ   க் + ஒ = கொ
க் + இ = கி   க் + எ = கெ   க் + ஓ = கோ
க் + ஈ = கீ   க் + ஏ = கே   க் + ஔ = கௌ

Step III: Practice in identifying the English letters in isolation, with special attention on the pairs p-b, c-g, t-d

Step IV: *Classification of letters as vowel letters and consonant letters*

Vowels : a, e, i, o, u
Consonants : b, c, d, f, g, h, j, k, l, m, n, p, q, r, s, t, v, w, x, y, z

Step V: Introduction of the monophthongal vowel sounds in association with identical vowel sounds in Tamil (see Table 1)

Table 1: English Vowel Letters and their Equivalent Tamil Sounds

Sl. No.	Vowels	Identical sounds in Tamil			
1	a	/^/ /"/	/a:/	/ ae/	/o:/
		அ	ஆ	ஏ (இஏ)	ஓ
		eg. apply	after	apple	audit
2.	e	/i/	/i:/	/e/	
		இ	ஈ	எ	
		eg. election	eagle	egg	
3.	i	/ai/	/i/		
		ஐ	இ		
		eg. ice	ill		
4.	o	/o/	/o:/	/Û/	
		ஒ	ஓ	அ	
		eg. October	order	ofence	
5.	u	/^/	/u:/	/u/	
		அ	ஊ	உ	
		eg. uncle	truth	put	

Students were told that 'o' here is not identical with ஒ or ஓ but a combination of அ ு ஓ and அ ு ஓ

The students learnt that all these five vowel letters of English represent eleven vowels in Tamil. The twelfth vowel 'ஔ' is represented by a diphthong /au/ which is represented by vowel letter combinations 'ou' and 'ow'.

Ow /au/

ou ஔ

Lists of words representing these primary vowel sounds were prepared and the students were asked to repeat these words after the investigator. Intensive drill was given to the students to fix these sounds in their minds.

Step VI: English consonants were classified into four categories, viz., (i) those identical will Tamil consonants; (ii) those identical with the adapted Tamil consonants; (iii) those identical with the adaptable Tamil consonants; and (iv) those other than the above, i.e., different from the Tamil consonants (see Table 2).

Table 2: English Consonants vis-à-vis Tamil Consonants

Category	Category Description	English Consonants
I	Identical with Tamil consonants	c,k,l,m.n,p,r,t,v,y
II.	Identical with the adapted Tamil consonants	h, j, s
III	Identical with the adaptable Tamil consonants	b, d, g
IV	Different from the Tamil Consonants	f, q, w, x , z

Practice was given to students through group and pair drill on each of the four groups as shown below:

Group I: English Consonants identical with Tamil consonants

c	-	சி - க்	(call)	p	-	பி - ப்	(pin)
k	-	கே - க்	(kick)	r	-	ஆர் - ர்	(right)
l	-	எல் - ல்	(life)	t	-	டி - ட்	(tall)
m	-	எம் - ம்	(mouth)	v	-	வி - வ்	(very)
n	-	என் - ன்	(night)	y	-	ஒய் - ய்	(yes)

Group II: English consonants identical with the adapted Tamil consonants

h = □ - ⊡ (hen)
j = ஜ - ஜ் (jug)
s = ஸ - ஸ் (sun)

Group III: English Consonants identical to adaptable Tamil consonants

b – ப – ப் (bag)
d – ட – ட் (dog)
g – க – க் (game)

As there are no identical orthographic symbols in Tamil for b,d and g, (ப், ட், க்) they are underlined as / ப் / , / ட் / / க் / to denote /b/ , /d/, /g/ respectively.

Group IV: English consonants unlike or different from Tamil consonants

These consonants do not have any identical Tamil consonants but a cluster of Tamil consonants that can be used to represent these consonant sounds of English.

f = ∴ப - ∴ப் (fun)
q - /க்யூ/ - (as ‘q’ is generally followed by ‘u’) ‘q’ gives the sound ‘க்யூ’
q = க்யூ - (queue)
w = / வ = வ் (Special instruction was given to round the lips while producing this / w/ sound)
x = எக்ஸ் - (x – ray)
z = ஜ - ஜ் (zeal)

Step VII:

Special features of **c** & **g.**
Each of these two consonants generally has two sounds whe
followed by a vowel;
'c' is sounded as /s / when followed by 'i', 'e' and 'y'
e.g. circus, cell, cycle
and
'c' is sounded as /k/ when followed by 'a', 'o' or 'u'
e.g. call, come, cut

When 'c' is followed by 'h', it is generally sounded as /$t_ʃ$/e.g. chair, chamber, chilly, child
Similarly, when followed by a vowel letter, 'g' represents tw sounds /g / and /d_3/
When 'g' is followed by 'e' or 'i' or 'y' it generally is sounded as d_3/ = ஜ = ஜ் sounded as in 'gem', 'age' etc. When 'g' is followe by 'a', 'o' or 'u', it is sounded as /g/ = f as in 'gold', 'game', 'gu 'goal', gate', 'got', etc. But there are a few exceptions too e.g. 'ge 'geese'.

Step VIII:

Special features of 'h' & 'r' were explained to the students.

'h' has the unique quality of modifying the preceding consona sound.

Table 3: Letter-Sound Relationships in English : Some Examples

Letter		Sound	Examples
p - /p/	-	ph - /f/	graph, sphere
c - /s/, /k/	-	ch - / $t_ʃ$/	church, chair, child
g - /g/; /d_3/	-	gh - /f/	tough, through, enough
t - /t/	-	th - /è/, /õ/	thick, then, those, think
s - /s/	-	sh - /ʃ /	shop, ship, sheep, ash

In most cases 'r' in mid position modifies the preceding vowel sound into /":/ (exceptions too)

e.g.	birth,	earth,	berth,	turf,	world
	/":/	/":/	/":/	/":/	/":/

Step IX:

Special features of vowel letter 'u' and consonant letter 'y'
Being a vowel letter 'u' produces a consonant sound /ju:/ when followed by 'ni' e.g. uniform, union, unit

Being a consonant letter, 'y' produces the vowel sound /i/ and the diphthong /ai/, e.g., story, try.

Step X: English has some frequently silent letters.
'b' is silent after 'm'
,e.g., comb, bomb
'e' is silent in final positions
,e.g., kite, notice
'h' is silent in 'honour' and words derived from it, e.g., honour, honourable
and
after 'w' and 'r', e.g., what, when, rhyme, wrap

'gh' is silent in mid-position, e.g., fight, eight, tight

'k', is silent before 'n', e.g., knit, knee, knife, know.

'l' is silent when preceded by 'a', e.g., calm, balm, chalk, talk, walk, palm, half, calf, balk.

'p' is silent when it is followed by 's', e.g., psalm, psycho

'r' is silent when a consonant follows it and when it occurs in the final position.
,e.g., park, mark, father, car

'w' is silent before 'r', e.g., write, wrong.

Step XI: Doubling of consonant letters does not produce two consonant sounds, e.g., ball, fell, miss.

Step XII: Only two vowel letters double. They are 'oo', and 'ee' and both produce long vowel sounds, e.g., 'ee' produces /i:/ as in 'feet', 'green'

'oo' gives generally /u:/ and occasionally / u / sounds
eg. /u:/ - food, fool
/u/ - 'took', 'cook', 'book', 'room', 'wool'.

Step XIII: Table 4: Some Common English Suffixes and their Examples

Sl. No.	Suffixes	Sound	Examples
1.	-tion, -sion, -sian, -cian-	/ʃ" n / = ஷென்	(ration, admission, Persian, electrician)
2.	-tious, -cious, -scious-	/ʃ" s / = ஷெஸ்	(nutritious, precious, conscious)
3.	-tial,-cial, -shal -	/ʃ l/ = ஷெல்	(essential, financial, marshal)
4.	-ique -	/i : k/= ஈக்	(technique)
5.	-ing -	/iç/ = இங்	(writing)

Step XIV: 'su' (in mid position) has the sound of /ý"/ = ஷ as in 'measure', 'treasure' etc.

Step XV: Some more common suffixes in English are given below:

1. '-age', '-ege', '-edge', '-idege' have the sound /id$_3$/ = இஜ் e.g. marriage, college, prorridge
2. '-logy' has the sound of = /l"d$_3$ i/ = லஜி e.g. theology, psychology
3. '-ophy' and '-aphy' have the sound of = /"fi/ = அஃ.பி e.g. philosophy, biography

Step XVI: After giving all these essential clues about the sounds of English and the consonant letter that represent them, the students were taught to form allophones of various consonants. After receiving guidance about the primary vowel sounds, the students were able to articulate the allophones with much difficulty.

a/அ/	e /எ/	i /இ/	o /ஒ/	u/உ/
ka	ke	ki	ko	ku
க்+அ=க	க்+எ=கெ	க்+இ=கி	க்+ஒ=கொ	க்+உ=கு
la	le	li	lo	lu
ல்+அ=ல	ல்+V=லெ	ல்+இ=லி	ல்+ஒ=லொ	ல்+உ=லு

In this way, the students were trained to read all the various allophones of English consonant sounds alongwith the various prominent vowel sounds.

Step XVII: Simple words were written on the blackboard and the students were asked to identify the sounds and read the words aloud. It was a bit difficult for the students to articulate correctly the sounds of the vowels in these words because some vowels have more than one sound depending upon the context in which they occur. Therefore only simple and known words were written on the blackboard to start with. Later on some new words were also written on the blackboard and students tried to pronounce them correctly, e.g.,

அ
jug = ஜ் + அ + க் = ஜக் = /d3^g/

moon = ம் + ஊ + ன் = மூன் /mu:n/
fish = ப்+இ + ஷ் = ஃ ஃ.பிஷ் = / fi$_ʃ$/

bite = ப் + ஐ + ட் = பைட் = /bait/

எஇஇ
enemy = எ + ன் + இ + ம் + இ = எனிமி = / enimi/

ஆ
card = க் + ஆ + ர் + ட் = கார்ட் = /ka:d/

(‘r’ is silent when followed by a consonant)

fight = ஃப் + ஐ + ட் = ஃபைட் = /fait/
(‘gh’ is silent in mid position)

இ இ
chicken = ச் + இ + க் + க் + இ + ன் = சிக்கின் = /tʃikin/

இ இ
pretty = ப் + ர் + இ + ட் + ட் + இ = ப் ரி டி = /priti/
(doubling of the consonant letter ‘t’ does not result in two sounds)

ஔ
cloud = க் + ல் + ஔ + ட் = க் லௌ ட் = /klaud/

ஓ
knot = க் + ன் + ஓ + ட் = னோட் = /knot/
(‘k’ is silent before ‘n’, ‘o’ is not identical with ஒ or ஓ in Tamil but is close to the combination of ஆ + ஒ or ஆ + ஓ)

எ
hen = □ + எ + ன் =ெ□ன் = /hen/
ஈ
she = ஷ் + ஈ = ஷீ = /ʃi:/

அ எ
address = அ + ட் + ட் + ர் + எ + ஸ் + ஸ் = அட்ரெஸ் = /”dres/

ஔ
tough = ட் + ஔ + ஃப் = டௌஃப் = /t^f/

ஆ
pharmacy = ஃப் + ஆ + ர் + ம் + அ + ச் + இ = /fa:m”si/
(‘r’ is silent when followed by a consonant)

ஆ
pslam = ப் + ஸ் + ஆ + ல் + ம் = ஸாம் = /sa:m/
(‘p’ before ‘s’ is silent. ‘l’ before ‘m’ is also silent)

Most students generally produce the pure vowel sound in the place of diphthongs, e.g., open, say, bold, road, most, old share, tour, cure, mature.

The sample being below average learners of a Tamil medium primary school, Tamil diphthongs except / au / and /ai/ were not introduced to them.

(3) SAMPLE OF THE CLASSROOM WORK

The following represent the range of the classroom work organized for the students to enable them to develop their oral reading skills:

- apply = /"plai/ = /"plai/
  அப் (ள்ஜ) = அப்ளை
  (doubling of the consonant letter 'p' produces only a single consonant sound)

- card = /ka:d/ = ka:d/
  (க்ஆ)ட் = காட்
  ('r' is silent when followed by a consonant)

- fight = /fait / = /fait/
  (ஃப்ஜ) ட் = ஃபைட்
  ('gh' is silent in mid position)

- cloud = /klaud / = /klaud/
  (க் (ல்ஔ)ட் = க்லௌட்

- psalm = /sa:m/ = sa:m/
  (ஸ்ஆ)ம் = ஸாம்
  ('p' is silent before 's')

- true = /tru:/ = /tru:/
  ட்(ரஊ) = ட்ரூ
  ('e' is silent in the final position)

- speed = /spi:d/ = /spi:d/
  ஸ் (ப்ஈ)ட் = ஸ்பீட்

- bench = /bent$_ʃ$ / = /bent$_ʃ$ /
  (ப்எ)ன்ச் = பென்ச்

- bat = /baக et/ = /baக et/
  (ப்ஏ)ட்= பேட்

- east = /i:st/ = /i:st/
  ஈஸ்ட் .= ஈஸ்ட்
  ea = /i:/

- city = /siti/ = /siti/
  (ஸ்இ) (ட்இ) = ஸிடி

- object = /obd$_3$ikt/ = /obd$_3$ikt/
  ஒ ப் (ஜ் இ) க் ட் = ஒ ப் ஜிக் ட்

- effect = /ifekt/ = /ifekt/
  இ(ஃப்எ)க்ட் = இஃபெக்ட்

- improve = /impru:v/ = / impru:v/
  இம்ப்(ர்ஊ)வ் = இம்ப்ரூவ்
  (‘e’ is silent in the final position)

- light = /lait/ = lait/
  (ல்ஐட்) = லைட்

- upset = /^pset / = /^pset/
  அப்(ஸ்எ)ட் = அப்ஸெட்

- inland = /inl”nd/ = /inl”nd/
  இன்(ல்அ)ண்ட் = இன்லண்ட்

- ounce = /auns / = /auns/
  ஔன்ஸ் = ஔன்ஸ்

- orbit = /o:bit/ = o:bit/
  ஓ(ப்இ)ட் = ஓபிட்
  (‘r’ is silent)

- chief = /$t_ʃ$ i:f/ = / $t_ʃ$ i:f/
  (ச்ஈ) ஃப் = சீஃப்
  (ie = /i:/)

- enough = /in^f/ = /in^f/
  இ(ன்அ) ஃப் = இனஃப்
  (o,u = /^/)

- good = /gud/ = /gud/
  (க்உ) ட் = கு ட்
  (oo=u:/

- food = /fu:d/ = /fu:d/
  (ஃப்ஊ)ட் = ஃபூட்
  (oo - /u:/)

- calm = /ka:m/ = ka:m/
  (க்ஆ)ம் = காம்
  (‘l’ followed by ‘m’ is silent)

- gentle = /$d_3$entl/ = / $d_3$entl /
  (ஜ்எ)ண்ட்ல் = ஜெண்ட்ல்
  (word final ‘e’ is silent)

- technique = /tekni:k/ = tekni:k/
  (ட்எ)க்(ன்ஈ)க் = டெக்னீக்
  (‘h’ is silent)

- gift = /gift/ = /gift/
  (க்இ).˙.ப்ட் = கி.˙.பட் .

- gem = ($d_3$em / = /$d_3$em/
  (ஜ்எ)ம் = ஜெம்

- enough = /in ^ f / = /in ^ f/
  இ(ன்அ) .˙.ப் = இன .˙.ப்
  (ou = /^/ = m)

- cash = /kக$_ʃ$ / = /kக$_ʃ$ /
  (க்ஏ)ஷ் = கேஷ்
  (sh = \;)

- village = /vilid_3 / = /vilid_3 /
  (வ்இ) (ல்இ) ஜ் = விலிஜ்
  (age = id_3 / = ,[;)

- baggage = /bகgid_3 / = bகgid_3)
  (ப்ஏ) (க்இ) ஜ் = பேகிஜ்

- quick = /kwik/ = / kwik/
  க் (வ்இ)க் = க்விக்
  (qu = kw; ck = /k/)

- zoo = /zu:/ = zu:/
  (ஜ்ஊ) = ஜீ

- yes = /jes / = /jes/
  (ய்எ) ஸ் = யெஸ்

(4) Post-test of Reading Skills

The sample group identified the consonant sounds easily after the exposure. But they took more time in combining the consonants and the vowels to form allophones in Tamil. Ten words (Appendix-1) selected from their textbooks were given with a bit of guidance about vowel sounds for the post-test. The students identified the sounds represented by various letters in the words and formed allophones by combining the consonant letters and the adjacent vowel letters. Then they read the words one by one. They took 45 minutes to complete the post-test.

0 ANALYSIS OF THE POSTTEST SCORES

Table 5: Pre-test-Post-test Results (%)

Test	Range	Mean
Pre-test	6-55	13
Post-test	30-90	47

wo out of the 40 students had a score of 90%. Three students scored 80% and another ree students scored 70%. Twenty-five students had above 40% marks. Only seven udents scored below 30% but the mean score of the entire sample was 47%. In view f these results, and the below average ability level of students at the start of the eatment, the hypothesis about the efficacy of the bilingual method was accepted.

indings

he use of the bilingual approach proved highly effective in developing reading skills of e below average students of this Tamil medium primary school. The students were ble to develop their skill in decoding sounds of various letters and letter combinations. hey developed confidence and enjoyed learning tasks as a game. This is revealed by eir high mean score on the posttest.

0 CONCLUSION

earning is a continuous and life long process. In these days of educational expansion nd experimentation, the teacher cannot avoid the complex roles of planner, designer, developer, presenter, evaluator, manager and researcher. This study represents an earnest attempt at enabling the students to learn the sounds of English according to their needs at this level.

It is through repeated practice alone that students can develop their language skills. The influence of the first language always impacts learners' second language learning. Sometimes even educated persons find it difficult to master all the nuances of spoken English. Even native speakers of English have differences about how some words and collocations should be pronounced. But as far as the students are concerned, an informed teacher can always sensitize them about most English sounds. This in turn will be extremely helpful to students and it can enable them to develop their reading skills without much frustration.

REFERENCES

1. Agarwal, Mamta. (1991), *Communicative Tests of Reading and Writing in English*. New Delhi: NCERT.
2. Aggarwal, J.C. (1997), *Essentials of Educational Technology: Teaching Lear ng.* Delhi: Vikas Publishing House.
3. Ganapathy, K. (ed.), (1991), *Spoken English*. Madras: Shantha Publishers.
4. Hornby, A.S., and Parnwell, E.C. (1968), *English Reader's Dictionary*. Lonc n: Oxford University Press.
5. Kohli, A.I. (1993), *Techniques of Teaching English*. Delhi : Dhanpat Rai & Sc s.
6. Prasad, Janardan., and Kaushik, Vijayakumari. (1997), *Advanced Education l Technology*. New Delhi: Kanishka Publishers.
7. Swaminathapillai, S. (ed.), (1993), *Teaching of English in Elementary Educati n.* Madras: Pavai Printers.
8. Venkataiah, N. (1996), *Educational Technology*. New Delhi: APH Publishing Corporation.
9. Venkateswaran, S. (1997), *Principles of Teaching English*. Delhi: Vikas Publish g House.

Appendix - 1

Pretest Reading Skills

1.	chair
2.	umbrella
3.	shirt
4.	doctor
5.	woman
6.	table
7.	mouse
8.	clock
9.	moon
10.	lock
11.	cat
12.	three
13.	fish
14.	cake
15.	cloud

16.	nine
17.	crow
18.	kitten
19.	pot
20.	needle
21.	peacock
22.	mouth
23.	pencil
24	seed
25.	ring
26.	wing
27.	funnel
28.	bridge
29.	compute
30.	jug

Posttest of Reading

1.	address
2.	broom
3.	garland
4.	knot
5.	pretty

6.	afternoon
7.	chicken
8.	current
9.	washing
10.	fight

14

A SUCCESSFUL CLASSROOM PRACTICE ACCEPTED BY THE PRACTITIONERS

M. CHINNAPPAN

ABSTRACT

sroom teaching in primary schools in general, and in the context of teaching English emi-rural and rural schools in particular, can be made a lot more effective if ruction is well planned and games and activities are used to motivate learners and port their learning. This study, based on these premises, was designed and carried t in a rural school and replicated later in other six diverse school situations. A well ought out instructional plan supported by a set of games was used to teach eleven mmonly used English prepositions. The effectiveness of the approach was assessed observing learner behaviour during the transaction of the plan as well as the learner's st-instruction behaviour. Teachers' acceptance and the practicability of the plan were aluated through a 20 item three-point rating scale. The responses indicated high eptance of the plan by the serving teachers.

INTRODUCTION

ucation is a deliberately planned process of bringing about desirable changes in the haviour of learners. Instructional planning or planning for teaching is the central pect of education. It is correct to assert that a vitally important part of the activities of y good teacher is to plan ahead for, to plan is to achieve a clear understanding of what e wants to do and how.

he following is one of the lesson plans, prepared for III, IV, V and VI stds. and tried out by the practitioner in his classroom and in the following places. The uniqueness of the plan is that it was applicable to all the above mentioned classes and it was successful in all the cases. But only the number of the prepositions varied according to the standard and the background of the students.

Place	Date	Observers	Standard	School
Ariyalur	14. 08.99	50 In-service teachers	III	R.C. Nirmala Gandhi Middle School
Ariyalur	20.03.00	20 Teacher educators &10 AEOs of the District	V	Union Elementary School (East)
Kurukkathi	19.10.00	50 II-year teacher trainees	IV	Govt. High School

Chennai	17.08.01	Lecturers & Sr. Lecturers (Eng) from 29 DIETs		The observers acted as students of standard VI
Vedaranyam training	9.01.02	Teachers under SPOT	VI	Boys Hr. Se School
Mayiladu Durai	21.01.02	Teachers under SPOT training	VI	Boys Hr. Se School
Sembanor Koil	26.03.02	Teachers under in-service training	VI	Boys Hr. Sec. School

THE LESSON PLAN

2.0 OBJECTIVE

To enable the learners to learn proper use of eleven commonly used prepositions, viz in, on, out, above, below, under, in front of, behind, between, before and after.

3.0 METHODS AND TECHNIQUES USED

An integrated approach subsuming playway, learning by doing, aural-oral and situationa approach was used in this study. Classroom objects like pen, pencil, bag, table, duste and a doll cat, number cards, letter cards, word cards, sentence strips, picture card and substitution tables were used as instructional materials. Six games were used fo the instructional purpose and another four for evaluation.

4.0 MOTIVATION

Learner motivation was ensured through the following language learning game.

Game - 1

A large circle is drawn on the ground.

The teacher says, **'IN'** and jumps into the circle.
She/he says, **'ON'** and stands on its boundary line.
And saying, **'OUT'** she/he jumps outside the circle.

The teacher illustrates the meaning and use of these words through his actions. Children watch the teacher closely. Then the children give instructions one by one by calling out IN- ON- OUT and the teacher acts them out. At times she deliberately makes a mistake and checks whether the children are observing and can find it out. Now comes the turn of the children to perform. The teacher gives instructions and the children carry out the corresponding action. First the teacher gives the instructions slowly and serially then she changes the order and speaks fast. The children who make mistakes are out and they are asked to repeat the instructions.

5.0 LEARNING ACTIVITIES

Learning activities were organized with the help of the following language learning games.

Game 2

First the teacher puts a pen into a bag and says, "The pen is **in** the bag". Then taking the pen out of the bag he/she says, "I'm taking the pen **out** of the bag". Similarly he/she keeps it on/under the bag and says, "The pen is **on** the bag". "The pen is **under** the bag". Now the children give commands like:
"In the bag"
"Out of the bag"
"On the bag"
"Under the bag". The teacher acts out these commands.
After some time the teacher gives the following commands:
"Keep your pen in the bag".
"Take it out".
"Keep it on your bag". and
"Keep it under your bag". The students carry out these commands in the same sequence.

Those who make mistakes are sent out of the game and they are asked to give the commands one by one. During this activity the teacher asks now and then- "Where is the pen?" and helps the children answer- "The pen is on/in/under the bag".

Game - 3

The teacher stands in front of a boy and says, "I am standing **'in front of'** Balu". Standing at the back of Balu, she/he says, "I am standing **'behind'** Balu". Then the teacher stands between two boys and says, "I am standing **'between'** Balu and Gopal". In the same way he/she holds the duster above the table and says, "I am holding the duster **'above'** the table". And he/she makes the children understand the meaning of the word **'below'** by holding the same duster below the board. Now the children are asked to give the commands.

When the children say:
"In front of" - the teacher holds the pen in front of his face.
"Behind" – the teacher holds the pen behind him.
"Above" – the teacher holds the pen above his head.
"Below" – the teacher holds the pen below his head.
"Between" – the teacher holds the pen between two fingers.
After sufficient practice the teacher gives the following commands:
"Keep your pen on your head"
"Hold it above your head"
"'Hold it below your head"
"Hold it behind yourself"
"Hold it in front of yourself"

"Hold it between your fingers/between your palms"- The students follow the command

Game - 4

The class is divided into two groups A and B. Each child is given a letter card.
A B C D E F ....group A
'A 'B 'C 'D 'E 'F ....group B
The teacher gives commands like - Letter C stand behind letter A. Letter F stand i
front of letter C. Letter D stand behind letter C. Letter B stand between letter C an
letter D. Each correct action is given one mark. The group that gets more marks i
the winner.

Game - 5

Letters of the Roman alphabet are written serially on the black board. The children are asked to speak sentences like:
"The letter **before** 'C' is ..'B'.."
"The letter **after** 'D' is ...'E'.."

As the children speak these sentences, the teacher encircles the corresponding letter on the black board and the children understand the meaning of the prepositions 'before and 'after'. Now each child is given a number card.

1 2 3 4 5 6 7........................Group A
1 2 3 4 5 6 7 ....Group B.

The teacher addresses the students and gives commands like,
"The number after 2, come out"
"The number before 2, sit down"
"The number after 5, run"
"The number before 7, raise your hands" etc.

Concerned students in both groups perform the corresponding actions. Each correct action is given one mark. The group that gets more marks is declared the winner.

Game - 6

Game-5 is played as an individual game. Each student is given a number – 1,2,3,4; 1,2,3,4; 1,2,3,4....Then the commands for Game-5 are repeated. The boy who continues to take part in the game till the end is the winner.

Game - 7

The class is divided into five groups. The first group matches the action picture with the (preposition) word card; the second group fills in the blanks in the strips; the third one frames sentences with the table; the fourth one plays with the letter cards; and the last or ays with the number cards. Each group gets a chance to do all these activities but y have carried out the earlier activity.

6.0 EVALUATION

Evaluation was carried out through the following games:

Game - 8

Group A keeps a doll-cat anywhere around (on) the table and asks Group B, "Where is the cat?" Group B says, " The cat is ......(on) the table". and writes the same on the board. Then group B changes the place of the cat (under the table) and asks the Group A, "Where is the cat?" and so on. The game continues.

Game - 9

This game is played as a chain activity. One boy keeps the cat anywhere in the classroom and asks another boy, "Where is the cat now?" The second boy now answers and changes the place of the cat and asks the third boy, "Where is the cat now?" Thus the game continues.

Game - 10

The two groups are asked to look around the classroom and write down four or five sentences using the prepositions they have learned. The group that writes more and correct sentences is the winner.

Game - 11

A thick straight line is drawn in the middle of the black board. When one group says, 'above' or 'below', the other group draws a simple picture above or below the line and the first group frames a sentence about where that particular picture is drawn. After playing this game for say 10 – 15 minutes, the two groups exchange their roles and continue the game for another 10 – 15 minutes. The group that performs better is the winner.

Game - 12

Two groups are given the following statements and are asked to fill in the blanks with the right answers. Each correct answer carries one mark. The group that completes the game first and gets more marks is declared the winner.

1. Sunday comes ——————Saturday. (after / before)
2. Sunday comes before —————— (Monday / Saturday).
3. ——————comes after Thursday.(Friday / Tuesday)
4. ——————comes before Saturday.(Sunday / Friday)
5. The months before and after June are ——— and ———(May/July/ March)

7.0 REMEDIAL MEASURE AND FOLLOW UP

Children are asked to play the games during the lunch break in the school with their classmates and in the evening at home with their friends, brothers and sisters. They are also asked to collect some composite pictures and write two or three sentences about the position of the objects in the pictures.

8.0 THE SALIENT FEATURES OF THE PLAN

The following are the salient features of the plan:

- **Many in one**
  The related prepositions are grouped together (in front of, behind, below, above, between) and taught with the help of one situation (on your head, above your head, below your head, in front of you, behind you, etc,).
- **Known to Unknown**
  The children are familiar with the game, 'in the pond – on the bank'. In vernacular, i.e., Tamil, the game is known as "Oolle (in) – Veliye (out)". So the game is already known to the learners and only the English words for the vernacular one are unknown. By playing this game, the children learn the unknown English words through the known Tamil words.
- **Simple to Complex**
  First the children start with the words like 'in', 'on', 'out'. Then they learn phrases like – 'in the bag', 'out of it', 'on the bag'. Finally they frame sentences like '*Keep it in the bag', 'Take it out', 'Keep it on the bag'* and *'The pen is in the bag', ' The ball is on the bag',* so on and so forth.

- **Psychological Approach**
  First the children are exposed to the atmosphere conducive to learning English; they listen to the teacher; they try to open their mouths and utter some short words; they hear commands given by the teacher and later on they themselves give commands to the teacher; they observe the demonstration given by the teacher; they act as members of a group; they speak in the group; they read in the group and they write in group. Thus all the four basic language skills are developed step by step, first in groups and only then are these followed by individual activities.
- **Play Way**
  Children learn the prepositions, their meaning and their usage in a play situation, in an atmosphere of cooperation and a bit of competition totally free from anxiety.
- **Structural Approach**
  The sentence patterns *'Keep the pen on the bag'* and *'The Pen is in the bag',* are learnt by the children in a meaningful way and get imprinted in their minds.
- **Learning by Doing**
  Language learning without action is much less effective for students of primary schools. It appears artificial to them. In this lesson plan children learn by doing, i.e., the words/phrases/sentences they get naturally with their actions and activities.

- **Continuous Learning and Self Learning**
  Since the prepositions are learnt through playway, children can play the games in the absence of the teacher and even outside the classroom.
- **Learning in Real Conditions**
  Language games organized in the classroom help create more or less real situations that facilitate language learning. The children try to enjoy putting questions and giving answers. Both are natural activities in real life. This helps students feel that whatever they are learning can be used in life.
- **Permanent Learning**
  Children easily remember what they learnt through this have method because they themselves take part in the activities.
- **Variety of Activities**
  There is much scope in this plan for the children to organize and participate in a variety of activities happily without feeling bored.
- **Group Learning**
  In this plan there is ample scope for group activities, collaborative learning and self or peer correction. Studies have established that peer-correction is far more effective than adult-correction.
- **Absence of Vernacular**
  Since every word goes contextually with the corresponding action, the teacher does not need to use vernacular words while teaching English.

9.0 ASSESSING ACCEPTANCE OF THE PLAN BY TEACHERS

Although this lesson plan was very well received by all teachers and students across the schools, it was decided to statistically test whether the lesson plan is merely enjoyable or it also facilitates student learning. So a descriptive three-point rating scale (Agree / Neutral / Disagree) was developed. Only such items as could assess the effectiveness and practicability of the plan from the point of view of in-service teachers were included. The first draft of the rating scale consisted of 25 positive and 25 negative statements. With the help of experts each item was viewed. Items not recommended by the experts because of their ambiguity, verbosity and other weaknesses were deleted. The revised rating scale after the try-out contained 20 items. The try-out was carried out on standard VI students. Ratings on the positive items were scored as 3,2,1 and those on the negative items were scored as 1,2,3. Item analysis of the try-out responses resulted into 20 items (positive items = negative items = 10) that were strongly and significantly correlated with the overall scores.

The final form of the rating scale was distributed to the teachers who observed the students' behaviour when the lesson plan was being transacted. The teachers responded to all items of the rating scale independently and without consulting others. The data were interpreted in the following manner. If the response to a positive item was ' Agree', it meant that the particular teacher accepted the effectiveness or the practicability of the plan. In the same way 'Disagree' meant rejection of the plan and 'Neutral' meant neither acceptance nor rejection. On the other hand if the response to the negative item was 'Agree', it meant rejection of the plan; 'Disagree' meant acceptance and 'Neutral' meant neither acceptance nor rejection.

Table 1: Interpretation of the Data: Itemwise

Item	Agree	Neutral	Disagree	Total No. (Teachers)	Acceptlance Percentage	Neutral Percentage	Rejection Percentage
1	48	2	00	50	96	04	00
2	50	0	00	50	100	00	00
3	49	1	00	50	98	02	00
4	48	2	00	50	96	04	00
5	49	1	00	50	98	02	00
6	49	1	00	50	98	02	00
7	43	6	01	50	86	12	02
8	48	2	00	50	96	04	00
9	50	0	00	50	100	00	00
10	50	0	00	50	100	00	00
11	01	2	47	50	94	04	02
12	00	0	50	50	100	00	00
13	00	1	49	50	98	02	00
14	00	0	50	50	100	00	00
15	00	0	50	50	100	00	00
16	00	1	49	50	98	02	00
17	00	0	50	50	100	00	00
18	00	0	50	50	100	00	00
19	03	7	40	50	80	14	06
20	01	1	48	50	96	02	02
				Total	**1934**	**54**	**12**

Average acceptance of the plan by the teachers — 96.7%
Average rejection of the plan by the teachers — 00.6%
Average neutrality or indecisiveness about effectiveness of plan — 02.7%

Table 2 gives the analysis of the responses in terms of their various individual parameters.

Table 2: Rater's Responses x Rater's Various Parameters

	Gender		**Area**		**General Education**		**Professional Education**		**Management**		**Service in Years**	
	M	F	R	U	T	D	DTE	B.Ed	Aii	Govt.	Ab	Below9
N	20	30	32	18	29	21	40	10	30	20	22	28
%	40	60.0	64.0	36.0	58.0	42.0	80.0	20.0	60.0	40.0	44.0	56.0
(%)	92	97.2	97.1	96.1	96.4	97.1	96.8	96.5	96.9	96.5	96.6	96.8
N(%)	07	02.2	02.5	03.1	03.1	02.7	02.6	03.0	02.3	03.3	02.7	02.7
D(%)	01	00.6	00.4	00.8	00.5	00.2	00.6	00.5	00.8	00.2	00.7	00.5

M=Male F=Female R=Rural U=Urban T=Twelfth D=Degree Ai=Aided Ab=Above 9 general trend of responses across various parameters of the raters is overwhelming avour of acceptance of the lesson plan.

CONCLUSIONS AND IMPLICATIONS

dging from the manner in which learners participated in the entire plan, their olvement in the games, their willingness to enact the games after the school day and gh acceptance of the Plan by serving teachers, it can be concluded that the study was ghly successful.

he results of this study have obvious implications for teaching English to students of rimary and upper primary stages. Proper and well thought out instructional planning, the se of games and activities in the classroom, using a variety of activities for developing pecific competencies among learners and developing necessary materials for follow-p activities are its major implications for increasing learners' motivation and achievement n English.

REFERENCES

1. Bryan, Coombs. (2002), *Successful Teaching – A Practical Hand Book.* Oxford: Heinemann Educational Publishers.
2. Chandrasekhar, S.F. and Vishweswar, G.R. (October 2000): A Journal of the Society for Educational Research and Development, 246-256.
3. Kochhar, S.K.(2002), *Methods and Techniques of Teaching.* New Delhi: Sterling.

THEORY SUPPORTING CARDS: AN ATTEMPT TO ACHIEVE BETTER CLASSROOM PRACTICE AND PROVIDING JOY IN THEORETICAL LEARNING OF ENVIRONMENTAL SCIENCE AT PRIMARY LEVEL

M. SELVAM

ABSTRACT

The real success of the Universalization of Elementary Education (UEE) implies promoting learners' thinking skills as well as cultivating scientific temper among them. Teaching of science in primary schools at present is incapable of serving both these objectives. Teaching of science needs to be made interesting and participative for learners so that they can link it up with life around them. The investigator, motivated by these considerations, developed a set of Theory Supporting Cards (TSCs) that can be used as supplementary teaching-learning materials (TLMs). In order to assess the effectiveness of these TSCs, the investigator conducted this study on 54 mixed-ability students selected from standard V in two schools, one primary school and the other an elementary school, of District Thanjavur, Tamil Nadu. The study was conducted in two phases and dealt with the teaching of planet Jupiter. TSCs were introduced in Phase II. These TSCs presented succinct information on Jupiter in summary from along with illustrative diagrams. Effectiveness of TSCs was assessed in terms of learner motivation, learner involvement and participation in learning tasks, development of curiosity and inquisitiveness among learners, and retention of learning. The results indicated that TSCs used in this study were quite effective. The investigator concludes this study with a set of suggestions for a meaningful shift from teacher-centred instructional strategies to student centred learning strategies for teaching science in primary schools.

> **"Knowledge is constructed and re-constructed endlessly by the human mind, action is the basis of knowledge"**
>
> **- Jean Piaget**

1.0 INTRODUCTION

Education is one of the essential factors in shaping the personality of an individual. It equips the children with knowledge, skills, values and attitudes etc., to make the optimum use of scarce resources and available services. Article 45 of the Constitution of India states as a Directive Principle that the State shall endeavour to provide free and compulsory education to all children upto 14 years of age within 10 years of the commencement of the Constitution. India has achieved substantial progress with regard to universal access, particularly by creating more facilities for primary education. The National Policy on Education (NPE, 1986) gave priority to the Universalization of Elementary Education (UEE). Also it recommended 'access to elementary education with success', 'promotion of equity' and 'improvement of quality'. The initiative of Sarva Shiksha Abhiyan (SSA) makes an attempt to link all the schemes of the UEE and sets targets to reach the long cherished goal of Education For All (EFA). Initial education meant for all will comprise essential life skills for the potential learners for meeting the learning needs of all. This is one of the important concerns of the UEE. Hence, some litative guidelines have been framed for classroom processes. Classroom processes st ensure the following:(a) use of appropriate and adequate teaching learning terials (TLMs) and activities for children; (b) activities to allow children to learn at their n pace while emphasizing progress through the curriculum; (c) the teacher to work a facilitator in the multi-level teaching-learning process and (d) learning to be made ective by the use of appropriate learning materials.

he teacher has to trigger and ignite young and tender minds to be curious to explore ings and enquire about every happening and imagine even the unimaginable – both in nd outside the classroom. Through the use of new methods and innovative strategies o instil interest in children, teachers need to ignite their creative thinking and imagination o acquire and construct knowledge while learning. Teaching is essentialy a process of stimulating, directing and guiding learners to be a part of the process through which they construct knowledge. The teacher attempts to make use of all possible means to enrich this process for learners. Teachers have to pay attention to the child centred approach in their teaching so that the acquisition of knowledge related to subject – matter is managed by the pupil. The child's basic nature is the capital which the teacher must use to succeed. His intelligence, attitudes, interests and desires underlie and inform the educative process. His acquisition of knowledge and his development of abilities and attitudes are stimulated by teaching. Unless the teacher uses new techniques in the classroom, he would not attain success in his endeavour. Whatever teaching technique the teacher uses, it should stimulate the students' desire to learn more and more.

Curiosity is one of the most important innate tendencies that underlie learning. It forms the basis of interest. It is a valuable agent in education when it is rightly valued and used. Learning takes place effectively under conditions of clear and individual attention. In order to facilitate the students' learning, the teacher must use means that are sufficiently meaningful and attractive to them to retain their attention through the teaching session. The NPE (1986) recommended that the quality of education must be improved and scientific temper be promoted among children. In order to develop scientific temper among children, child-centered and activity-based process of teaching science should be adopted at the primary and upper primary stages. It is therefore expected of school science teachers that they use relevant teaching-learning materials (TLMs) for supporting their teaching. The main purpose of this strategy is to develop curiosity among children in learning Environmental Science and reorganizing scientific facts by using "Theory Supporting Cards (TSCs)".

2.0 SCIENCE EDUCATION AND TEACHING OF SCIENCE

John Woodburn and E.O. Oburn consider science as human endeavour that seeks to describe with ever increasing accuracy, the events and circumstances, which occur or exist within our natural environment. Science is created when it is needed. The quest for solution through intuition, logic, hypothesis and observation leads to discovery of nature's mysteries. Science is the result of adventure in the human spirit. Science education needs to be strengthened in schools in order to develop well defined values and abilities such as the spirit of inquiry, objectivity, the courage to question and creativity among students. Bailey (1903) writes, "Nature may be studied with either of two objects: to discover new truths for the purpose of increasing the sum of human knowledge or to put the pupil in a sympathetic attitude towards nature for the purpose of increasing his joy of living". Education Commission (1964-1966) recommended in its report, "The aims of teaching in the primary school should be to develop proper understanding of the main facts, concepts, principles and processes in the physical and biological environment".

Almost all school teachers follow the traditional method of teaching science. The NPE (1986) stated that the aim of teaching science is primarily directed towards problem solving and decision-making through the learning of key concepts which cut across all disciplines of science. Learning of science will enable the learners to realize the relationship of science with medicine, agriculture, industry and other aspects of human life. In order to improve teaching of science at the primary stage, certain features of the support structures, such as standards, curriculum, teaching kits, and technology, pre-service and in-service training of teachers, are required to be in place. In order to inculcate scientific temper among children, we have to provide quality science teaching to them. According to W.Pauli "The aim of teaching science is not the acquisition of information but to attain the understanding of the relationship which connects the answers to the problem". A major goal of teaching science is to provide experience and understanding of the methods of science.

3.0 RATIONALE FOR DESIGNING INNOVATIVE WORK

Patole (1967) in a study of teaching science in rural primary schools explored the existing weaknesses and tried out the activity-based method which was found superior to the traditional one. Recent studies on primary education show that levels of learning achievement are rather low (Dave et al., 1988; Govinda and Varghese 1993; Sh 1994; Bashir et al.,1993, Jangira 1994; Varghese 1994) which means that the quality primary education needs to be improved. Learners' low achievement level is mainly to the fact that the opportunities provided to each and every child are not geared to promoting learner achievement. The investigator observed that the classroom teaching of Environmental Science in primary schools is generally diffuse, uninteresting and without support materials. Proper support materials for the teaching and learning process can provide information as well as joy to learners and finally help improve their level of learning. The principal idea of using innovative practices should be to improve teaching and learning of Environmental Science and make it more interesting for students. It was with this purpose that the investigator has developed "Theory Supporting Cards" as an innovative learning material for the teaching-learning process.

4.0 OBJECTIVES

The objectives of this innovative practice are:

- To assess the effectiveness of Theory Supporting Cards in improving learners' achievement.
- To transact the prescribed content with the help of Theory Supporting Cards.
- To develop curiosity among children in learning EVS.
- To activate the students' competencies, e.g., oral expression and cognitive abilities of recognizing and identifying.

5.0 THEORY SUPPORTING CARDS (TSCS): THEIR NATURE AND PHILOSOPHY

Teaching of science today is neither activity based nor an individualized process. Students use prescribed textbooks only and hardly any supplementary materials. Science is taught and learnt in an unrealistic and mechanical manner in most schools. The idea behind Theory Supporting Cards (TSCs) is to make curriculum transaction in science more meaningful and to promote competency-oriented learning among students.

John Dewey (1938) emphasized, “Education should be student-centered and it should reflect the realities of the time”. Theory Supporting Cards (TSCs) are essentially teaching-learning materials (TLMs) which enable and encourage students to observe and ask questions. TSCs are meant to be used as an integral part of teaching. They provide information about science literature, scientific interests, diagrams, inventions and discoveries. They promote intellectual skills like knowledge, comprehension, analysis and critical thinking and behavioral skills. Besides, they also promote process skills like observation, interpretation, communication and experimentation among children.

The investigator wished to promote better learning of science through TSCs. Students of Standard V are mostly unfamiliar with the planet Jupiter. Hence, he decided to develop TSCs with updated information about Jupiter. The TSCs aim at extending the scope of students’ learning about Jupiter by providing scientific information in a summary form with visual presentations. In order to check the learners’ distraction, the number of visuals was controlled. Depending upon the student’s needs, the investigator sequenced and revised instructions in the related TSCs.

6.0 METHODOLOGY USED IN THE STUDY

For the proper use of TSCs, the students are divided into groups. They are asked to sit in semi-circular rows, starting from the right flank of the teacher to the left flank according to their learning abilities. Each group consists of below average learners, average learners and above average learners. The teacher needs to be thoroughly acquainted with the content of the lesson and plan for effective instruction. Then the teacher displays the Theory Supporting Cards sequentially to the learners so that their contents are effectively learnt by the students. The investigator used this very procedure for optimal use of the TSCs in Thiruvaduthurai Aatheenam Primary School, Thiruvidaimaruthur (on a sample of 30 Standard V students) and Sri Kumara Kurubara Swamigal Elementary School, Aduthurai (Sample of 24 Standard V students). The TSCs provided a lot of scope for interaction between the investigator and the students. This interaction generated thinking and inquiry among students. The investigator planned to implement the TSCs in the following way.

Phase – I

Class - V
Topic -The Solar System

Time – 30 minutes
Sub topic – Planet Jupiter

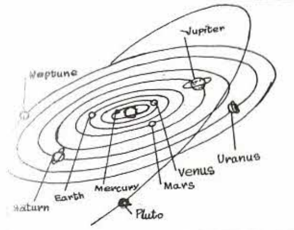
Finding out students' knowledge

Investigator : What is the solar system?
Students : Answered.
Investigator : How many planets are there in the solar system?
Students : Answered.
Investigator : Name the planet, which is nearest to the sun.
Students : Answered.
Investigator : Which is the largest planet in the solar system?
Students : Answered.
Investigator : Do you know the salient features of Jupiter?
Students : ***Not Answered.***

The investigator thus came to know that the students were unfamiliar with the salient features of Jupiter. He introduced the TSCs into the classroom. For the next few minutes, the students were busy observing and reading the TSCs. The students observed the pictures and asked the investigator some questions.

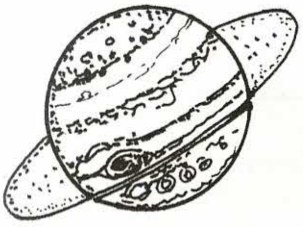
Phase – II

Introducing the TSCs



The Solar System

It has nine planets and more than 60 moons, millions of asteroids and other rocky objects and countless comets. Its diameter in space is 15 trillion kilometers.



Jupiter

It is the largest and most massive planet .It spins fast. Its brightness is slightly less than that of Venus.

Vital Statistics

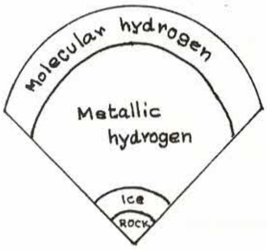
Diameter – 142,984 km

Time for one spin on axis –9.93hours

Time for one revolution –11.86Years

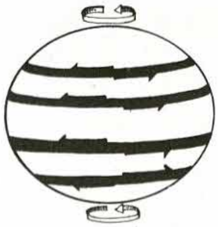
Minimum distance from the Sun-740.6 million Km

Maximum distance from the Sun-816.0 million Km



Internal Structure

Jupiter consists of a rocky core, a layer of ice, a layer of hydrogen in liquid metallic form (because it is at high pressure and temperature) and an outer layer of molecular hydrogen.

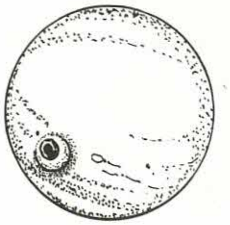


Atmospheric Circulation

Increasing heat combined with rapid rotation produces high and low pressure zones around the planet.

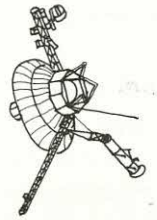
Red Spot

The largest cloud feature is the Great Red Spot, which has existed for at least 140 years.



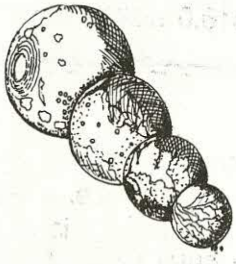
Comet Impact

In July 1994, 21 fragments of comet Shoemak – Levy – 9 slammed into Jupiter. Dark spots i the diagram show the sites of the impact.



Voyagers

Voyagers I and II took pictures of Jupiter, Saturn Uranus and Neptune between 1979 and 1989.



Galilean Moons

Jupiter has 16 known moons. The four moons studied by Galileo are Io, Europe, Ganymede a Callisto. The surface of Europe is covered with ice and has a liquid ocean beneath the ice. Io i covered with volcanoes. Ganymede's core is molten iron surrounded by a rocky mantle with a ice shell. Callisto consists of about 60% rock and iron and 40 % ice and water.

Galileo Galilee (1564 – 1642)

Italian mathematician, physicist and astronomer Galileo was the first to turn a telescope towards the sky. He built a telescope in 1609. He discovered that Jupiter has 4 satellites.

7.0 FINDINGS

Th nvestigator evaluated the effectiveness of the TSCs through learners' oral ex ession and cognitive abilities. Student behaviours in the classroom were an yzed (See table 1).

Table 1 : Impact of TSCs Analysis of Students' Behaviour (W=54)

Sl. No.	Parameters	No. of Students	Percentage
1.	Motivated students	48	89
2.	Students showed interest in learning	44	81
3.	Students participated joyfully in learning tasks	43	80
4.	Students enthusiastically inquired about content	40	74
5.	Recognized pictures after a week	40	74
6.	Recollected information without seeing the TSCs after two weeks	37	69

he above analysis of student behaviour reveals that 48 students (89%) were motivated hrough the use of TSCs. 44 students (81%) showed interest in learning the content. 43 tudents (80%) joyfully participated in various learning activities. 40 students (74%) nthusiastically inquired about the content. 40 students (74%) could recognize the ctures after a week. 37 students (69%)could recollect the information without the cards fter two weeks.

The following learning outcomes were also observed and noted by the investigator during the course of the study:

- Students were extremely happy and enthusiastic about learning and expressing scientific facts and rules.
- Students were always very active, curious and joyful throughout the teaching-learning sessions.
- Students paid special attention in their class and there was no negligence in the classroom at any stage.
- Students confidently answered various questions put to them.

8.0 IMPLICATIONS OF TSCs

School teachers can use TSCs for promoting scientific temper through teaching-learning of science in their classrooms. They can utilize TSCs as *delivered material* or *as operational material* for explaining concepts and processes of science. TSCs are, as shown by this study, quite effective in promoting learner motivation and learner involvement.

Besides, TSCs promote curiosity and inquiry among learners. They help introdu innovative practices in classroom teaching.

9.0 CONCLUSION

The above findings reflect that the Theory Supporting Cards can play a very import role in teaching and learning processes. These cards can be used as supplement TLMs for the effective teaching and productive learning. The role of the teacher in pro use of TSCs is very crucial for the success and failure of every educational interventio The teacher needs to change his role from a lecturer to a facilitator. He must also able to switch over from teacher-centred instructional strategies to student-centr learning strategies. In order to achieve this end under the DPEP the following suggestio merit consideration:

- CRCs need to devote time to designing innovative exercises in science curricula
- Teachers need to be encouraged to adopt the culture of using alternative resource for supporting their teaching.
- Teachers should subscribe to leading educational journals devoted to teachin science.
- DIETs must organize in-service and voluntary programmes for teachers to enab them to take up preparation of teaching-learning materials in science.

REFERENCES

1. Ahmed, Tabassum. (1996), *Research in Teaching of Biology.* New Delhi: A.P. Publishing Corporation.
2. Brahadeeswaran, D., and Ramachandran, A. A. (1990), *Applied Science: Chemistry & Physics.* New Delhi: Tata McGraw-Hill.
3. Cheek, D.W., Briggs, Robert., and Yager, R.E. (1992), *Science Curriculum Resource Handbook.* California: Corwin Press.
4. Couper, Heather., and Henbest, Nigel. (1999), *Space Encyclopedia.* London: Dorling- Kindersly.
5. Dave, P.N. (2003), 'Education of the Young Child: Curriculum Design and Process. *Perspectives in Education.* 19(3).
6. Dutt, Suresh. (1998), *Experiments in Teaching for Child Development.* New Delhi: Anmol Publications Pvt. Ltd.
7. Easwari, P.(2003), Effect of Pupil Location on the Mastery of EVS Competencies in Standard I. *The Primary Teacher,* 28(1).
8. Ediger, Marlow. (2003), 'Design and the Science Curriculum'. *School Science,* XLI (1).
9. Kashyap. S.C. (1990), *National Policy Studies.* New Delhi: Tata McGraw-Hill.
10. Kramer. (1999), *Children's Illustrated Encyclopedia.* London: Dorling Kindersly.
11. Kumar, A. (1995), *Teaching of Physical Sciences.* New Delhi: Anmol Publications.
12. Kumar, Lalit. (2003), 'Using Learner's Nature and Innate Tendencies as Basis for Teaching-Learning Process'. *The Primary Teacher.* 28(2).
13. Mani, R.S. (2001), 'New Approaches of Teaching Science'. *Recent Researches in Education and Psychology.* 6(1&2).

14 Misra, K.S. (1992), *Perspectives in Science Education.* Agra: Vinod Pustak Mandir.

1 Mishra, Susani., and Basantia, T.K. (2003), 'Effect of Competency Based Evaluation on Students' Attainment at Primary Level'. *The Primary Teacher.* 28(2).

Rama, K.S. (2003), 'Effectiveness of Playway Technique in Teaching of Science at Upper Primary Stage – An Experimental Study'. *The Primary Teacher.* 28(1).

Rao, D.B. (1996), *National Policy on Education. Vol. (2).* New Delhi: Anmol Publications.

18. Ravi, N.C. (1997), *Learning Science at the Primary Stage: The Hindu Speaks on Education.* Chennai: Kasturi & Sons.

19. Rai, B.C. (1999), *Method of Teaching Science.* Lucknow: Prakashan Kendra.

20. Sahni, A.K. (2002), 'Organization of Science in the School'. *PTA Magazine.* 40(7).

21. Sangai, Sandhya. (2002), 'Streamlining Universalisation of Elementary Education'. *The Primary Teacher.* 27 (2).

22. Sehgal, N.K.(1992), 'Social Role of Scientists'. *NCSTC Communications.* 3(2).

23. Sharma, R.C. (1994), *Modern Science Teaching.* Delhi: Dhanpat Rai & Sons.

24. Shipman, J.T., Wilson,J.D., and Todd, A.W. (1997), *An Introduction to Physical Science.* Boston: Houghton- Miffin.

25. Sinha, G.S. (2000), *Encyclopedia of Educational Development .Vol (4).* New Delhi: Common Wealth Publishers.

26. Stratton, Peter., & Hayes, Nicky. (1988), *A Student's Dictionary of Psychology.* New York: Arnold.

27. Thaker, M. (2002), 'Inquiry for the Science Laboratory Effectiveness & Secondary Schools'. *School Science.* 40(1).

28. Tirkey, U.T.(2001), 'The Rise of Modern Indian Science'. *NCSTC Communications.* 13(7).

29. Yadav, M.S.(1992), *Teaching of Science.* New Delhi: Anmol Publications.

30. Zackariah, Lalitha. (et al), (2001), *India 2001- A Reference.* New Delhi: Ministry of Information & Broadcasting, Govt.of India.

16

EDUCATIONAL EFFICIENCY OF ELEMENTARY TEACHERS ON ENVIRONMENTAL CONCEPTS – A STUDY FROM PONDICHERRY REGION

K. SAMPATH, T. SUNDARAMOORTHY AND V. RAMALINGAM

ABSTRACT

It is widely argued that a viable strategy for developing environmental awareness is t need of the hour in order to check any further environmental degradation of our hon planet. Efforts in this direction have already been made by our central government a well as state governments. In some states, notably in Tamilnadu, dedicated institution centres have been established to check further environmental damage and to promot awareness about the environmental concerns. This study on Educational Efficiency o Elementary Teachers on Environmental Concepts was conducted through a survey o 152 elementary school teachers (male = 65, females = 87) drawn from 75 primary an upper primary schools of Pondicherry region. A questionnaire was developed to asses teachers' knowledge of environmental concepts dealt with in the science text books mainly of standards I- VIII, and also to some extent in those for standards IX-X. Three types of items (True/False, Fill in the blanks and multiple choice) based on fiv dimensions, viz., botany, zoology, ecology, water resources and pollution, were used i the questionnaire. A 5-point Attitude Scale was also developed to investigate responden teachers' attitude to environmental concerns. Data were analyzed for each dimensio the type of the test item, the type of the school and the teacher's sex in respect of bot knowledge and attitude. Mean differences were tested through the 't'-ratio test an coefficients of the correlation between knowledge and attitude scores were also calculated. In the end, the investigators made four suggestions based on the findings to furthe strengthen environmental education in schools.

1.0 INTRODUCTION

Environmentalists and academicians all over the world are of the view that a viable strategy to take care of the alarming environmental crisis is a dire need of the present times and immediate implementation of a programme on environmental awareness can no longer be postponed. Realizing the importance and needs of environmental education, the Government of India, while adopting the National Policy on Education, 1986, and reviewing the same in 1992, reiterated as follows, "There is a paramount need to create a consciousness of environment. It must permeate all ages and sections of society, beginning with the child. Environmental education should confirm teaching in schools and classrooms. This aspect should be integrated in the entire educational process" (Sharma, 1997). The NCERT developed a National Curriculum Framework (NCF) for elementary and secondary education in 1988 which stressed the need for inculcating environmental awareness and nurturing children for environmental protection through education (NCERT, 2001). Efforts at the national level, however, did not bring about expected results, and degradation of the quality of environment continued unabated. The causes responsible for such a sorry state of affairs can be traced to the inclusion of only a few concepts on environmental concerns and the ineffective classroom processes ad[illegible] by the teachers due to the lack of adequate knowledge on the environmental concerns. This study explores the level of knowledge and attitudes of elementary teachers on the environmental concerns.

2.0 PRESENT STATUS OF ENVIRONMENTAL EDUCATION IN INDIA

In the administrative structure of our union government, the Department of Education, Ministry of Human Resource Development (MHRD) is responsible for the integration of Environmental Education into the formal education system at all levels. The National Council of Educational Research and Training (NCERT) takes care of this at the school level. At the college and university levels, this responsibility is vested with the University Grants Commission (UGC). The Ministry of Environment and Forests (MOEF) plays a pivotal role by interacting purposefully with the UGC, the NCERT and the MHRD for introducing the expanding environmental concepts at various levels. Further, the responsibility of developing strategies for creation of awareness amongst all strata of the people about environmental issues through non-formal education has also been entrusted to the MOEF (Mehta and Usha, 2000).

3.0 CONCERN OF JUDICIARY ON ENVIRONMENTAL EDUCATION

Realizing that the efforts for nurturing true knowledge and awareness about the environment among the citizens of India have not had much impact, which is reflected in the continued degradation of the quality of our once pristine environment, the Supreme Court of India rightly intervened and directed all state governments and educational agencies in the country to introduce environmental education as a compulsory special subject in all classes in schools upto the higher secondary level from the academic year 2004-05 by implementing the apex court's order of 1991. The Supreme Court also directed the NCERT to frame a model syllabus for the schools keeping in view the 1991 judgement and to submit it before the Court by April 2004 (The Hindu, September, 2003). The deep concern and seriousness of the Supreme Court on the importance of introducing environmental education can be further gauged from the issue of the contempt of court notice to the administrative heads of some of the state governments for not honouring its orders (The Hindu, October, 2003). Complying with the order of the Supreme Court, the NCERT, started consultations with experts and teachers to prepare a syllabus on environmental education from classes I to XII which was to be submitted before the Supreme Court on or before the stipulated date (The Hindu, December, 2003). It augurs well that realizing the seriousness of the issue of environmental conservation and with a view to enforcing the order of the Supreme Court, the Bharathidasan University, (Trichy, Tamil Nadu) planned to introduce a paper on environmental studies for its undergraduate students from the academic year 2004-05 (The Hindu, December, 2003). The introduction of a separate subject on environmental education is in vogue in many countries in the west (Ballantyne, 1995).

4.0 INTERVENTIONS BY GOVERNMENT AND OTHER ORGANIZATIONS

In the Union Territory of Pondicherry, much attention has been focused on improving the content knowledge of school teachers about environmental concerns. As a measure to update the knowledge of school teachers on environmental aspects, a separate unit called “Environment Cell” was started in 1989 by the Education Department, Governme of Pondicherry. Since its inception, this Cell has been carrying out several activities school teachers and school students which include establishment and monitoring eco-clubs, conduct of audio-visual programmes on environmental concepts, conduc training programmes, organization of awareness campaigns, conduct of semin symposia and conferences, conduct of eco-tours, competitions on various environm related aspects, undertaking annual projects in schools like coastal eco-restorat adoption of trees, raising of herbal garden etc., by involving teachers and students fr all the categories of schools throughout the Union Territory. The activities of Environment Cell have been supplemented and supported by the C.P. Ramaswa Aiyar Environmental Education Centre, Chennai, which has established a Resou Centre at Pondicherery. These two organizations frequently conduct several programm to enrich the knowledge of the teachers and students on environmental conce (CPREEC, 2003).

5.0 MATERIALS AND METHODS

Protection of environment necessitates the sensitization of students to environmen concepts through effective classroom transition. Teachers as change agents sho design relevant strategies to impart knowledge about environmental concepts am students to develop a favourable attitude among them towards conserving the environm and reversing the damage already done to our environment. Effecting such a desira change among students requires not only the teachers' strong grounding in th subjects but also their favourable attitude towards the conservation of environment. educational efficiency of teachers is centred on the cognitive and affective dimensi of environmental education. Consequently, this study attempts to assess the educatio efficiency of teachers by assessing the cognitive and affective dimensions with instruments. These instruments were developed by the investigators and administe on teachers to measure the knowledge and attitude of the teachers.

6.0 CONSTRUCTION OF TOOLS

Two tools, namely a questionnaire and an attitude scale, were designed and developed specially for this research study. The questionnaire contained questions under three categories, viz., 'Yes/No type', 'Fill-in the blank type', and 'Multiple choice type' which were based on the ecological concepts given in the science textbooks of standards I-X. Of these, a larger percentage (95%) was taken from the science textbooks of standards I-VIII and the remaining from the textbooks of standards IX-X. The reason for taking questions from the science textbooks of standards IX-X was to assess how far the teachers refer to the science textbooks of higher classes to update their knowledge.

6.1 Questionnaire

The questionnaire with questions under three categories, viz., 'Yes/No type', 'Fill-in the blank type' and 'Multiple choice' was designed systematically as advocated in research literature. Under the 'Yes/No type' 50 questions on six dimensions, viz., Botany, Zoology, Ecology, Water Resources, Pollution and Awareness, were developed and assigned one mark for each. The number of questions on these dimensions was 8, 9, 13, 8, 6 and 6 respectively. In the categories of 'Fill-in the blank type' and 'Multiple choice type'

25 questions each were developed on 5 dimensions, viz., Botany, Zoology, Ecology, Water Resources and Pollution. The number of questions in each of these dimensions under 'fill in the blanks' was 5, 6, 8, 3 and 3, respectively, whereas the number of questions corresponding to these dimensions for the multiple choice items was 5, 7, 7, 3 and 3 respectively.

6.2 Attitude Scale

An attitude scale was constructed with 40 statements under six dimensions as given in the 'Yes/No type' category for the questionnaire with 8, 8, 9, 5, 5 and 5 statements respectively on a 5-point scale, viz., '"Fully Agree", "Agree", "Undecided", "Disagree", and "Fully Disagree" with scores of 5, 4, 3, 2, and 1 respectively.

7.0 SAMPLING

The questionnaire and the attitude scale were administrated on 152 elementary teachers who teach science in 75 schools of different categories, e.g., primary schools, upper primary schools, high schools and higher secondary schools located in and around Pondicherry. Of these, the number of primary teachers and upper primary teachers was 93 and 59 respectively. While the number of male and female teachers from primary schools was 39 and 54, that from upper primary schools was 26 and 33 respectively.

8.0 ANALYSIS OF DATA

The collected data were analyzed and tabulated. Further, statistical analysis of the data was carried out through SSPS version 10.

9.0 RESULTS AND DISCUSSION

The results have been presented both on the teachers' knowledge of and attitude to environment and its protection and conservation for different types of items.

9.1 Knowledge of Teachers

On the whole, the mean score obtained on knowledge, on "Yes/No type", "Fill-in the blanks" and "Multiple choice type" items by all the four categories of teachers on all the dimensions was 47.22%. The mean score obtained by each category of teachers on all the dimensions did not exhibit any marked variations (Table 1). The mean score was the lowest (44.84%) for the male upper primary teachers and the highest (51.35%) for the male primary teachers. The percentage score obtained on each dimension for all the teachers also did not show any marked variation. Of all the dimensions, 'Water Resources' had the lowest score (32.18%) while Botany had the highest score (46.36%). Mean scores of male and female teachers from both the types of schools did not show wide variation. The mean score of the male teachers was (48.09)% and for the female teachers it was 46.33%. Across different types of schools, the teachers from primary schools had comparatively high mean score (49.20%) while the upper primary school teachers had a mean score of 45.63%.

Table 1: % Mean scores on Knowledge X Different Categories of Teachers X Various Dimensions

Teacher Category	Dimensions					Total
	Botany	Zoology	Ecology	Water Resources	Pollution	
M.P. teachers	47.9	41.42	37.40	37.56	41.11	51.35
F.P. teachers	47.85	36.36	36.82	30.83	36.40	47.06
M.U.P. teachers	45.12	36.72	29.74	30.71	37.08	44.84
F.U.P. teachers	44.59	36.54	33.18	29.62	38.61	45.63
Total	**46.36**	**37.76**	**34.28**	**32.18**	**38.3**	**47.22**

(M.P. = Male Primary Teacher, F.P.= Female Primary Teachers, M.U.P.= Male Upper Primary Teacher, F.U.P. = Female Upper Primary Teachers).

9.2 'Yes/No' Items

When the teachers' knowledge is viewed separately for different categories of questions, a holistic picture emerges regarding their knowledge. The % mean score for all teachers on all the dimensions is quite high (76.30%). The performance of each category of teachers on all dimensions was higher and also had a bit of variation. A relatively lower mean score (74.25%) was obtained by female primary teachers and the highest mean (78.77%) was for the female upper primary teachers (Table 2).

Table 2 : % Mean Scores x Different Categories of Teachers x Yes/No types Items x Various Dimensions

Teacher Category	Dimensions						Total
	Botany	Zoology	Ecology	Water Resources	Pollution	Aware -ness	
M.P. teachers	80.12	64.33	66	72.37	90.16	93.0	77.66
F.P. teachers	74.75	62.88	63.38	67.5	86.0	91	74.25
M.U.P.teachers	76.37	66.66	58.84	69.12	85.83	90.33	74.52
F.U.P.teachers	81.37	64.88	65.23	71.87	91.83	97.47	78.77
Total	**78.15**	**64.69**	**63.36**	**70.21**	**88.45**	**92.95**	**76.30**

When looking at the performance of these four categories of teachers on each dimension, the relatively lowest mean (63.36%) was recorded for 'Zoology' and the highest mean (92.95%) was for 'Awareness' (Table 2). The relatively low mean scores on 'Zoology', 'Ecology' and 'Water Resources' (Table 2) may be attributed to poor knowledge on these dimensions of environment. Thus, efforts should be made to improve teachers' knowledge on these dimensions. Innovative strategies should be used for teaching of environmental concepts.

Regarding the performance of the different categories of teachers on 'Yes/No' type items, over 50% of the teachers gave incorrect answers to six questions. These questions were "First tropic level includes all the primary consumers", "All the animals living in terrestrial and aquatic habitats are not amphibians", "Turtle is an amphibian", "Secondary consumers, the carnivores, belong to tertiary level in the food chain", "In decomposer food chain, similar to that of predator chain, energy is saved in tissues", and "Tamil Nadu gets copious rainfall through Southwest monsoon". As 50% of the teachers were unable to answer these questions, it is apparent that teachers are not well prepared on the related environmental concepts. The questions for which less than 50% of the teachers gave correct answers were "Birds migrate from other countries to breed in India", "Grasshoppers and elephants belong to the same tropic level", and "In aquatic ecosystem, zooplankton, which feed on phytoplankton are called primary consumers". Though these concepts are given in the textbooks, teachers were unable to answer these questions correctly. As a result more effective strategies need to be devised to improve teachers' knowledge on these topics.

9.3 'Fill-in the Blanks' Items

These 25 questions further tested the teachers' knowledge on environment and the related concepts. The performance of the teachers on these items was alarmingly poor. The overall % score for all teachers was just 12.33% (Table 3).

Table 3: % Mean scores x Different Categories of Teachers x Fill-in the Blanks Items x Various Dimensions

Teacher Category	Dimensions					Total
	Botany	Zoology	Ecology	Water Resources	Pollution	
M.P. teachers	14.35	25.21	9.62	0.0	14.52	12.74
F.P. teachers	23.0	17.5	11.25	0.0	13.33	13.02
M.U.P.teachers	17.6	20.5	6.25	0.0	14.10	11.69
F.U.P.teachers	17.4	23.16	9.75	0.0	9.0	11.86
Total	**18.08**	**21.59**	**9.22**	**0.0**	**12.74**	**12.33**

Further, the performance of all categories of teachers, on all dimensions was found to be very poor with % mean score ranging from 11.69% to 13.02%. The % mean score was relatively high (21.59%) for "Zoology" and the lowest (0 %) for "Water Resources" (Table 3). 152 teachers could answer just one question, "Places established for the protection of birds and animals are __ and __". Of the remaining 24 questions, no teacher had correctly answered 8 questions. These questions were "Sandalwood tree is _____ parasite"; "Globally ___ zoonosis have been identified"; "In India in all ___ sanctuaries and ___ national parks have been established so far"; "All over the world ___ animals have been identified"; "Of the entire available water on our planet ___% is in the form of sea water and ____% is as glaciers"; "The total number of irrigation tanks in

Tamil Nadu is ___"; "of the total available water in India ____ % is used for irrigation" and "The permissible noise level in India is ____ decibels". For the remaining 16 questions, the percentage of teachers who gave correct answers varied between 0.65% and 40.13%.

9.4 Multiple Choice Items

The knowledge of the teachers on environmental concerns was further probed through 25 multiple choice items. The performance of the teachers was quite low on these items as well. The mean score of all teachers on all the dimensions was 28.12% (Table 4). The lowest mean score (22.63%) was for female upper primary teachers and the highest (35.9%) for male primary teachers (Table 4). In terms of dimensions, the lowest % mean score (14.16%) was on 'Pollution' and the highest (42.85%) on 'Botany' (Table 4).

Table 4: Percent Mean Score x Different Categories of Teachers x Multiple Choice Items x Various Dimensions

Teacher Category	**Dimensions**					**Total**
	Botany	**Zoology**	**Ecology**	**Water Resources**	**Pollution**	
M.P. teachers	49.23	34.71	36.57	40.33	18.66	35.9
F.P. teachers	45.8	28.71	35.85	25.0	11.66	29.40
M.U.P. teachers	41.4	23.0	24.14	23.0	11.33	24.57
F.U.P. teachers	35.0	21.57	24.57	17.0	15.0	22.63
Total	**42.85**	**27.0**	**30.28**	**26.33**	**14.16**	**28.12**

73.68% teachers (W = 112) gave the correct answer to the question, "Bacteria which convert atmospheric nitrogen in to nitrate". Over 50% of the teachers gave correct answers to six items, viz., "The renowned Indian agricultural scientist", "the author of a famous book on natural selection", "the name of the parasite which causes malaria", "the Greek philosopher who wrote a book on medicinal plants", "the name of the sanctuary where rhinoceroses live in large numbers in India", and "animals living in tertiary and quaternary tropic levels". The remaining seven items were answered correctly by below 40% of teachers.

9.5 Attitude of Teachers

The % mean attitude score for the entire sample was 79.67%. This high score indicates that teachers have a highly favourable attitude towards environmental concerns. The variation in the mean scores for different categories of teachers on all the dimensions was marginal, i.e., quite low (Table 5).

Table 5: Percentage Attitude Scores x Different Categories of Teachers in Various Dimensions.

Teacher Category	Dimensions						Total
	Botany	Zoology	Ecology	Water Resources	Pollution	Aware -ness	
M.P. teachers	80.38	71.98	70.46	81.4	89.2	83.88	79.55
F.P. teachers	77.8	70.77	71.64	80.15	87.32	80.22	77.98
M.U.P. teachers	78.94	78.92	70.17	86.92	90.92	83.68	81.59
F.U.P. teachers	78.17	73.32	71.71	78.4	89.33	86.4	79.55
Total	**78.82**	**73.76**	**71.0**	**81.71**	**89.19**	**83.54**	**79.67**

The lowest % mean score (77.98%) was for the female primary teachers and the highest % mean score (81.59%) was for the male upper primary teachers. The % mean score on various dimensions for all categories of teachers showed a marginal variation. The highest % mean attitude score of 89.19% was on 'Pollution' and the lowest % mean score (71%) on 'Ecology'. Along with 'Ecology', 'Zoology' also got a relatively low % mean attitude score (73.74%). This is indeed a matter of concern. The high % mean score on other dimensions reveals that teachers possess fairly good knowledge on the related environmental concepts.

The % mean attitude score, for the male teachers from primary and upper primary schools was 75.52%, whereas it was slightly higher, i.e., 78.76% for the female teachers. Across different types of school teachers from primary schools, % mean attitude got the score of 73.76% while teachers from the upper primary schools had a % mean score of 80.57%.

Though the overall % mean attitude score of teachers and on various dimensions was "highly favourable", quite a considerable number of teachers expressed neutral (undecided) and negative attitude to nearly 50% statements. These statements were: "Plants though called producers simply convert sun's energy into chemical energy, but do not produce energy by themselves", "Human beings are responsible for the spread of exotic weeds", "Removal of dead trees form the forests will affect the fertility of the soil", "Felling of large number of trees from the forests will promote growth of weeds in the forests", "Migratory birds do not breed in Indian habitats", "Dinosaurs became extinct only because of abrupt climatic change", "Metamorphosis takes place only in some animals", "Killing of snakes will lead to increase in rat population", "Euglena, the zooplankton, has chloroplast in its body", "In any ecosystem food chain cannot be seen in isolation", "Floods and droughts do not occur naturally", "Elephants and grasshoppers belong to the same tropic level", "There will be gradual reduction in energy from lower to higher tropic level", "Unlike that of predator food chain, in decomposer food chain energy is stored outside the body", and "More than half of the world population depends on wetlands for their survival". A possible reason for the teachers' tendency of responding either neutrally or negatively to these statements could be the lack of sound knowledge about these concepts. Since we found these teachers to be weak on these aspects, their students cannot be expected to acquire adequate knowledge on these topics. Under the dimension 'Awareness' many teachers gave negative responses especially on these two statements: "Environmental concepts given in primary level are adequate" and

"Students cannot understand environmental concepts because of their not following activity based and joyful teaching-learning methods". It can therefore be assumed that the teachers expect that many more concepts on environment need to be included in the curriculum. As teachers do not seem to realize the impact of innovative teaching, it is important that they be encouraged to adopt innovative strategies in the teaching of environmental concepts.

9.6 Further Analysis of Variables

(a) Correlation between knowledge of and Attitude to Environment

Table 6: Correlation between Knowledge of and Attitude to Environment

Variable	N	Mean	S.D.	r
Knowledge	152	47.88	8.88	0.556
Attitude 152	155.49	13.92		

Out of the total score of 100 for knowledge, the mean score was just 47.88, i.e., less than 50%. As this mean score is only slightly below average, it can be construed that the teachers' knowledge of environmental concepts is just satisfactory. The attitude scale had a total score of 200; the mean score of the respondents was 155.49. As this score is considerably high, it can be inferred that the teachers have highly favourable attitude towards environmental education.

It can be inferred from Table 6 that attitude to and knowledge of the environment are directly related with each other. The obtained correlation coefficient is positive and significant. Due to the interventions being made in the sample schools, by both the government and the environmental education organizations, it is expected that in the course of time the teachers will acquire further knowledge on environmental concepts, thereby making their students more informed about various environmental concerns. These findings are supported by Ballantyne (1995), Hoody (1995), and Jones et at., (2003).

(b) Mean Difference on Knowledge x Sex

Table 7: Significance of Mean Difference Between Male and Female Teachers about Knowledge of Environment.

Sex	N	Mean	S.D.	Standard Error	't'-ratio	Significance Level
Male	65	48.32	9.485	1.176	520	Not significant
Female	87	47.55	8.442	90.905		

The difference in knowledge between male and female teachers is found to be not significant (Table 7) which indicates that male and female teachers have almost the same level of knowledge of the environmental concepts. As both the sexes have the same level of knowledge, the interventions at the same level should considerably improve their knowledge.

(c) Mean Difference on Knowledge x Primary and Upper Primary School Teachers.

Table 8: Significance of Mean Difference between Primary and Upper Primary School Teachers on Knowledge.

School	N	Mean	S.D.	Standard Error	't'-ratio	Significance Level
P.School	93	48.82	7.83	0.81	1.564	Not significant
U.P.School	59	46.38	10.22	1.33		

The difference in knowledge between teachers from primary schools and upper primary schools is not significant (t=1.564). This shows that the teachers who teach environmental concepts in the primary and upper primary classes possess a comparable level of knowledge of the environmental concepts. Consequently, the same interventions can be expected to help improve teachers' knowledge about the environmental concepts and concerns.

(d) Significance of Mean Difference between Male and Female Teachers

Table 9: Significance of Mean Difference between Male and Female Teachers on Attitude

Sex	N	Mean	S.D.	Standard Error	't'-ratio	Significance Level
Male	65	156.38	12.99	1.611	693	Not significant
Female	87	154.82	14.62	1.567		

The difference between the mean attitude scores of male and female teachers is just 1.56 which is not significant (t= 0.693). Similarly, the difference in mean attitude score between the teachers from primary and upper primary schools is also found to be not significant (t=1.425) (Table 10). As the attitudes of the teachers of both the sexes are almost at the same level, similar intervention strategy can be expected to bring about the desired results in terms of a more positive attitude to environmental concerns.

Table 10: Significance of Mean Difference x Primary and Upper Primary School Teachers

School	N	Mean	S.D. Error	Standard	't'-ratio	Significance Level
P. School	93	154.24	14.45	1.49	1.425	Not significant
U.P. School	59	157.45	12.92	1.68		

10.0 CONCLUSION

This study reveals that though the respondent teachers' knowledge on environmental concerns is a shade below average, they have a highly favourable attitude to environmental concerns. These teachers can, therefore, be expected to mould the students and develop appropriate environmental ethics among them. Since the favourable attitude of school teachers is an added advantage, the efforts being made by the concerned governments may be further strengthened in order to achieve the goal of making the teaching community and the students more environment conscious.

11.0 FURTHER SUGGESTIONS

In the context of the alarming environmental degradation, it may not be wise to give up the efforts already being made to check and control environmental degradation. Since the problem exists all over India, serious thought needs to be given to protect our environment for the well being of our future generations and for this, the following suggestions need to be considered:

1. A separate course/paper on environmental education with local specifics may be developed and taught.
2. Teachers at all levels should be further sensitized about environmental concerns through in-service training programmes in order to sustain and further strengthen the present level of awareness and effort.
3. Greater emphasis should be given on the inclusion of more environmental concepts in teacher training courses at various levels of school education.
4. At least one institute dedicated to the cause of environmental protection and upgradation should be established at the district level to teach exclusively environmental aspects to all the stakeholders.

REFERENCES

1. NCERT (2001), *Environmental Orientation to School Education – A Training Module for Southern Region.* New Delhi: NCERT.
2. Ballantyne, R.R. (1995), 'Environmental Teacher Education: Constraints, Approaches and Course Design'. *International Journal of Environmental Education*, Vol. 14, No.2.
3. C.P.R.E.F.C (2003), C.P.R. Environmental Education Center, *Annual Report 2002 – 2003.* Chennai: *C.P.* Ramaswamy Aiyar Foundation.
4. Hoody,L. (1995), *The Educational Efficacy of Environmental Education,* An Interim Report. State Education and Environment Roundtable, http://www.seer.org.
5. *Jones, L.C., Penwell R. and Hakverdi, M. (2003):* The Status of Environmental Education in Latin American Middle and High Schools. *http.//grove.ufl.edu/nmerd/ Latin America EE. Htm.*
6. Mehta, R., and Usha, S. (2000), *Environment Education: Policies and Initiatives of the Ministry of Environment and Forests.* Proceeding of the Conference on "Environmental Education of the New Century' Chennai: C.P.Ramaswamy Aiyar Environmental Education Centre.

7. Sharma, A. (1997), 'Developing a Global Environmental Perspective in the School Curriculum in India: An Exploratory Study'. *Indian Journal of Environmental Education and Information.* Vol. 16, No.3.
8. The Hindu 23 December, 2003
9. The Hindu 28 December, 2003
10. The Hindu 29 October, 2003

IMPROVISED SCIENCE APPARATUS FOR ELEMEMTARY CLASSES FROM DISPOSABLE PLASTIC CONTAINERS

M. Mihuraj Fatima

ABSTRACT

Science is essentially based on observation, experimentation and induction, and teaching and learning of science should reflect these. However, observation and experimentation are often missing from classroom activities related to science teaching in most government schools. Consequently, teaching and learning of science often become textbook-based. Non-availability of adequate science apparatus is the reason cited for this sorry state by most science teachers. This study involved the use of low cost or zero cost plastic items to support teaching of scientific concepts through classroom activities and experiments. The investigator has attempted to demonstrate through this study how various plastic items, if used imaginatively, can motivate students and enhance their achievement. Using a pretest-posttest single group design this study was conducted on 49 Standard VI students (girls = 24, boys = 25) in a lab school of a DIET in Tamilnadu. Gain scores (%) were calculated and Mean Gain Score was sufficiently high to support the conclusion that the exposure given to students through activity-based teaching and learning of science is effective in enthusing them and increasing their achievement.

1.0 INTRODUCTION

Science is universal. It is concerned with the fundamental knowledge of our world and its environment. It searches the reality or truth behind a natural phenomenon or about a material substance through observation, experimentation and induction. Science and scientific knowledge – concepts, generalization and theory, are of a definite nature.

Technology is not universal and it changes according to the facilities, situations, resources etc. Unlike science, it deals with the numerous ways and means of pressing science into human service, making or changing things for the better and meeting public ends. It is through technology that we reap the benefits of science.

Revolutions in electricity and electronics have been possible solely due to scientific research and technological artifacts. Science and technology jointly affect our society. Problems can be solved through scientific principles and technology can be used as a tool. Hence, it is important to apprise students that science and technology go hand in hand.

Considering the relevance of science and technology, the National Curriculum Frame work for School Education (NCERT,2000) recommends the teaching of 'Science and Technology' as one of the subject areas in place of 'Science' at the upper primary and secondary levels with the main aim of providing 'science and technological literacy'. Needless to say that concepts in science should be developed as far as possible around experiments. However, adequate facilities are not available in terms of chemicals and apparatus in most elementary and secondary schools.

There has been a growing concern about environment degradation due to pollution. We come across **pollution everywhere** – up in the sky, under the sea, and on the land in the form of air pollution, water pollution, thermal pollution, noise pollution, and **soil pollution**. When we focus our attention on soil, the **'use and throw' plastic containers** are the major pollutants. Tonnes after tonnes of plastic containers are dumped into the soil daily, thereby affecting its very nature. As plastic containers are **non-biodegradable**, they remain unchanged over lakhs of years. Its accumulation in the soil affects water percolation. As a result, out water table sinks lower and lower and the soil becomes dry and unfit for cultivation. When these containers are consumed by animals, wild or domestic, they die of suffocation. Even the biggest aquatic mammal, the whale, is no exception. The warning bell has already been ringing. Some concrete steps are needed to be taken urgently for stopping this menace.

It is with this intention of **reducing the 'P – MENACE'** that the investigator made an attempt to make use of these **plastic containers in the form of laboratory apparatus** thereby meeting the need of most of the Indian schools **to teach science through learning by doing**. This exercise served two purposes, viz., ensuring **clean environment** and using waste for making **science apparatus.**

2.0 NEED AND SIGNIFICANCE

Learning is an active process on the part of the learner. It should take place through understanding and not through memorization. Learning by doing is perhaps the quickest and the most effective way to understanding. Learning through experiments provides firs thand experience and arouses curiosity and interest among students. Experiments and original thinking are the basis of science. Science teaching is not just giving information about science to students. The ultimate purpose of teaching science is to educate students by making science a part of their life's activities.

The main criticism levelled against the science teacher is that "teachers are not willing to make their teaching interesting and are satisfied with the traditional chalk and talk method. There is hesitation on the part of the teachers to try out innovation in classroom teaching. Activities are seldom included in the classroom deliberations and laboratory programmes are seldom organized as an opportunity for exploration" (Nayar and Pushpam, 2000).

To make **science learning** a fun by giving students a chance to express their creativity, science teachers need to emphasize and organize scientific activities including experimental work. Experimental work is not possible in the absence of adequate science apparatus. Most of our elementary schools do not have lab facilities and cannot afford to buy these apparatuses. Besides, the government cannot supply all the requisite apparatus for obvious financial constraints. Instead of waiting for the government to supply the necessary apparatus to them, science teachers can use these disposable plastic containers and prepare necessary apparatus and help **their students enjoy learning science through a variety of activities.**

3.0 OBJECTIVES

The following were the objectives of this study:

- To widen students' outlook about science and enable them to apply its knowledge in life situations.
- To promote learning by doing.
- To familiarize the students with the process of handling science apparatus.
- To provide opportunities to the students for developing scientific skills.
- To inculcate scientific attitude.
- To provide opportunities for fostering the students' creativity.
- To promote self learning.
- To enable the students to explore local resources and protect the environment.
- To develop among the students values like co-operation, tolerance and waiting for one's turn.
- To help the students prepare improvised science apparatus of their own.

4.0 ABOUT THE 'USE AND THROW' PLASTIC CONTAINERS

The following features of these 'use and throw' plastic containers need to be noted by all science teachers and their students:

- Low or no cost.
- Light in weight.
- Available in various sizes, colours, shapes and thickness.
- See through / transparent.
- Water proof.
- Locally available.
- Easy to handle.
- Unbreakable or not easily breakable.

5.0 ABOUT THE IMPROVISED SCIENCE APPARATUS

A. Who are these apparatuses for?

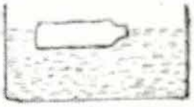
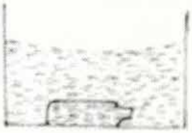
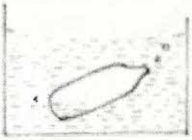
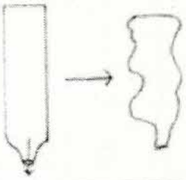
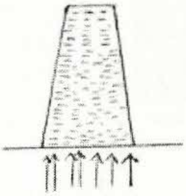
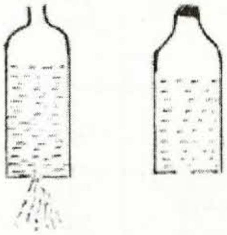
These improvised science apparatuses are not meant for a particular class; they are for standards I – VIII.

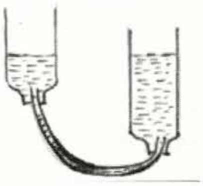
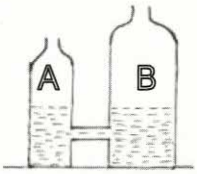
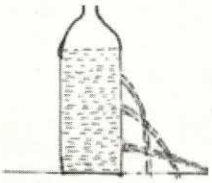
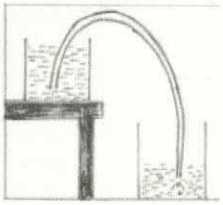
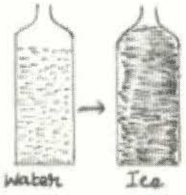
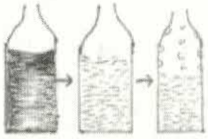
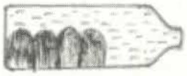
B. Psychological and educational value of these apparatuses

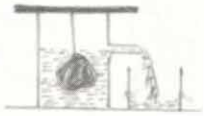
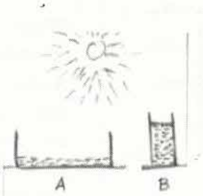
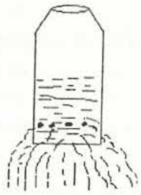
It is widely accepted that learner-centered, activity-oriented and competency-based education helps in improving the overall quality of education at different levels of schooling. **Experiments using these apparatuses** can be performed **individually or in groups.** The most important thing about these experiments is that the required apparatus should be in the hands of the students and not always on the table of the teacher. If the students are allowed to handle the apparatus and perform the experiments, they will be able to acquire the associated mental concepts. By performing these experiments, the students can gain confidence and the classroom can become a lively place where students enjoy their learning. **Joy of learning can reduce the dropout rate, increase retention at school and promote discovery through learning.** Collectively, these can sharpen mental activity and increase the speed and accuracy of learning. The use of these apparatuses further reduces teachers' dependence on textbooks and students are able to maximize their learning in the allotted time.

Table 1: The Apparatuses prepared and their uses in explaining the Concepts/ Principles in Science.

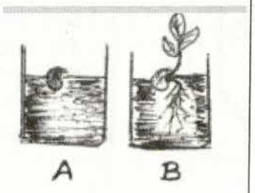
PHYSICAL SCIENCE

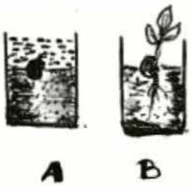
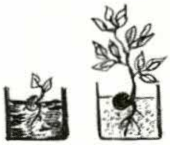
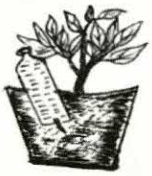
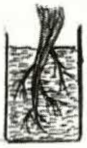
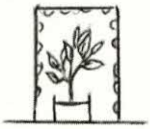
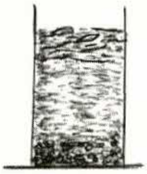
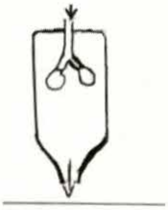
	Concept/ Principle	Experiment	Inference	Class
1.	Things lighter than water float		An empty plastic bottle is lighter in weight, hence it floats on water	III
2.	Things heavier than water sink		A plastic bottle full of water sinks in water because it is heavy	III
3.	Air occupies space		When an empty plastic bottle is immersed in water air bubbles come out as water enters in. This proves that air occupies space.	IV
4.	Air has pressure. Air exerts pressure on all slides.		When air is sucked out of an empty plastic bottle, the bottle gets flattened. This proves that air has pressure and it exerts pressure on all sides.	IV
5.	Air exerts pressure upwards.		When a plastic tumbler full of water with a paper card on it is turned upside down, the paper card does not fall down. this proves that air exerts pressure upwards and prevents the water from falling down.	VI
6.	Air exerts pressure downwards.		Fill up an empty plastic bottle with water to its brim and screw its cap on. Hold it upside down and make three holes in its cap upside. You will notice that no water comes out of its holes at the bottom. Now unscrew the cap. You will find that the water inside the bottom sprinkles out. Screw up the cap firmly and the sprinkling stops. This shows that air exerts a downward pressure on the water inside the bottle.	IV

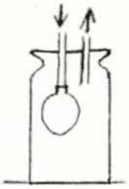
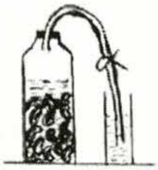
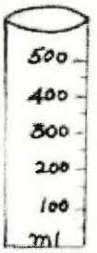
7.	Air pressure is the same on a plane at different points.		Water level in both the plastic bottles (A & B) remains the same. This proves that air pressure is the same at different points on the same plane.	VII
8.	Liquids flow and they do not have a definite shape. A liquid takes the shape of the vessel in which it is put.		Water poured into an empty plastic bottle reaches bottle B and takes the shape of that liquids flow and a liquid does not have a definite shape. It takes the shape of the vessel in which it is put.	VI
9.	Pressure exerted by a liquid is directly proportional to its height in a vessel.		When the depth of the water column in th eplastic bottle increases. Water comes out with greater force. This proves that pressure is directly proportional to the height of the liquid in the bottle.	VI
10.	Siphon system: its working principle.		As shown in the preceding column, water flows easily from the higher level to the lower level. This is how the siphon works.	VI
11.	Water expands when freezes		Fill up a transparent plastic bottle with water as shwon in A. Screw its cap on and put it in a deep freezer till it (the water) freezes. Now take it out. You will notice that now there it less empty space in it as shown in B. This proves that water expands as it freezes.	IV & VI
12.	Water exists in more than one form.		Ice melts into water (liquid form), water vapour is seen along the sides of the half filled water bottle when it is kept in the sun. This proves that water exists in solid liquid and gaseous forms.	VI
13.	When looked at through a liquid, objects appear larger.		When our teeth are seen through a water filled bottle they look bigger. This proves that when looked at through a liquid, objects appear bigger.	VII

14.	Law of floatation		When a stone is immersed in water, water flows out through the outlet. This proves the law of floatation, i.e., when an object is immersed in liquid, it displaces the liquid equal to its volume.	VI
[illegible]	Spirit Level		When kept on a level surface, the bubble in the spirit occupies the central position. When kept on uneven surface the bubble in the spirit level moves towards the ends. This is useful in order to know whether a surface is even or uneven.	VII
16.	NIght Sky		When a darkened bottle (x) is it inside stars, and the moon are visible on its surface.	I & V
17.	The size of a vessel affects the rate of evaporation of the liquid it contains.		When the same amount of water is poured into vessels A and B, water in A gets evaporated soon. This proves that the broader the surface the quicker the rate of evaporation.	VI
18.	Magnets attract iron. Plastic conducts magnetism.		When a magnet is moved along the outerside of the bottle, the iron nail inside the bottle also moves with it. This proves that plastic conducts magnetism and magnet attracts iron.	VI
19.	Pascal's Law		When water is poured into a bottle. with holes at the same level, water comes out of the poles with equal pressure. This proves Pascal's law which states pressure exerted on a point in a liquid is equally transmitted to all points.	VI

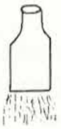
B. NATURAL SCIENCE

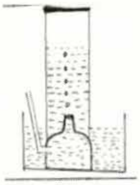
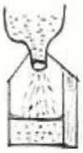
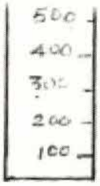
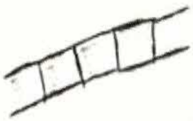
Sl. No.	Concept	Material Used	Teaching/Learning activity	Class
1.	Conditions for Germination of Seeds. a) Water is essential		Seeds in Pot B germinate because it is properly watered while seeds in Pot - A do not germinate in the absence of water. This proves that water is essential for the germination of seeds.	IV

	b) Air is essential		Seeds in Pot B germinate while seeds in Pot A do not. this proves that adequate supply of air is essential for germination of seeds.	
2.	Type of soil/manure/ exposure to sunlight affects the rate of plant growth.		Projects on plant growth can be conducted using these plastic pots. Besides, medicinal and ornamental plants can also be grown in these pots.	V
3.	Drip irrigation		Potted plants grow very well with less than a litre of water a day. This proves that drip irrigation prevents wastage of water.	VI
4.	Roots absorb water.		When the cut end of the root is immersed in red coloured water for an hour, we can see red colour streaks along the root that is above the water level. This proves that root absorbs water.	/II
5.	Water comes out of the plant during transpiration.		When this arrangement is kept in the sun for some time, we can observe water vapours along the sides of the bottle. This proves that water comes out of the plant during transpiration.	IV
6.	Soil contains lighter and heavier particies and some water soluble substances.		When a handful of red soil is put in to water and stirred well and left undisturbed for some time, we can see lighter substances (small pieces of stick and leaves) float on the water and tiny pebbles and mud settle at the bottom, and the wtaer takes the colour of the soil. This shows that soil contains lighter as well as heavier substances and also some water soluble substances in it.	VII
7.	Respiration: During inspiration fresh air is breathed into lungs through the wide pipe.		When air is sucked out of the bottle, pressure decreases inside and the atmospheric air comes into the bottle through '^ tube' and fills the balloons. This experiment illustrates the process of inspiration.	IV & VII

	Respiration (continued)		During inspiration the volume of the thoracic cavity increases due to the flattening of the diaphragm and the contraction of the rib muscles. This results of this, the atomospheric air is taken in and it fills the lungs through the wind.	IV & VII
8.	Carbon-di-oxide is given out by the seeds during respiration.		The set-up shown on the left is kept untouched for 2 days. Then the clip is removed and carbon-di-oxide is released into the container with lime water. The lime water turns milky. This proves that seeds give out carbon-di-oxide during respiration.	IV
9.	Measure of capacity	 	By using these graduated plastic bottles and syringes students can take the required quantity of liquid, e.g., water. Besides, the students can learn that 1/2 litre = 500 ml 1 litre = 1000 ml 1 1/2 litres = 1500 ml 2 litres = 2000 ml Students can make use of these apparatuses to measure liquid from 5 ml to 2 litres. The capacity of any given vessel can be found out using these apparatuses.	III

C. General: Used plastic bottles can be put to many uses; some of these are illustrated below:

S. No.	Apparatus		Uses	Class
1.	Beaker		to conduct experiments, e.g., to show that oil is lighter than water so it forms a layer above the water.	III - VIII
2.	Mug		To take water	III-VIII
3.	Sprinkler		To water potted plants.	IV-VIII
4.	Open container		To keep salt and other lab items.	VI-VIII

5.	Bee-hive shelf and gas jar		In the preparation of gases.	VI-VI
6.	Closed container		to store water, diluted acids etc.	VI-VII
7.	Funnel		To avoid spilling/wastage	III-VIII
8.	Pen stand (general)		To hold pens, pencils etc.	All class
9.	Night lamp shade		Ornamental purpose	Genera
10.	Measuring Jar		To measure liquids	General
11.	Pipe		To take water to the plant	General

6.0 DESIGN OF THE STUDY AND DATA ANALYSIS

When these apparatuses were used by students (24 girls + 25 boys) of standard VI of our lab school, the Pre-test-Post-test single group design was used for this study.

a) The pretest: based on items on physical and natural science as given in Appendix-I

b) Treatment or Exposure: For two weeks.
c) The posttest: based on items on physical and natural science. The pretest was used as the posttest.

Table 2 show the pretest and posttest scores of the study sample:

Table 2: The Pretest - Posttest and Gain Scores % (N=49)

Sl. No.	Pre-test	Post- test	Gain
		b	
01	40.0	63.3	23.3
02	43.3	70.0	26.7
03	70.0	93.3	23.3
04	50.0	63.3	13.3
05	60.0	80.0	20.0
06	60.0	86.7	26.7
07	96.7	100.0	3.3
08	73.3	90.0	16.7
09	63.3	83.3	20.0
10	40.0	60.0	20.0
11	73.3	96.7	23.4
12	66.7	90.0	23.3
13	43.3	63.3	20.0
14	43.3	70.0	26.7
15	53.3	73.3	20.0
16	53.3	80.0	26.7
17	70.0	93.3	23.3
18	83.3	96.7	13.4
19	60.0	86.7	26.7
20	66.7	83.3	16.6
21	46.7	66.7	20.0
22	56.7	83.3	26.6
23	50.0	76.7	26.7
24	56.7	73.3	16.6
25	43.3	63.3	20.0

Sl. No.	Pre-test	Post-test	Gain
	a	b	a-b
26	66.7	80.0	13.3
27	63.3	80.0	16.7
28	46.7	83.3	36.6
29	63.3	93.3	30.0
30	60.0	83.3	23.3
31	66.7	86.7	20.0
32	50.0	73.3	23.3
33	53.3	86.7	33.4
34	33.3	50.0	16.7
35	60.0	76.7	16.7
36	43.3	63.3	20.0
37	53.3	90.0	36.7
38	66.7	93.3	26.6
39	50.0	76.7	26.6
40	60.0	80.0	20.0
41	50.0	73.3	23.3
42	30.0	60.0	30.0
43	60.0	83.3	23.3
44	53.3	86.7	33.4
45	56.7	80.0	23.3
46	50.0	73.3	23.3
47	73.3	100.0	26.7
48	46.7	76.6	30.0
49	40.0	83.3	43.3
Mean	**56.3**	**79.6**	**23.3**

7.0 FINDINGS

Using experiments for learning science resulted in higher learner achievement and th greater involvement in classroom activities.

8.0 SUGGESTIONS

Knowledge of the working definitions of science produces scientifically literate citizen The primary goal of science education is to help students develop the understanding science as well as technology. Experiments and practicals sustain the interest students in learning science.

It is through demonstration and experimentation that positive attitude about science an learning science can be developed among the students. These plastic apparatuses ca be of great use to student teachers and practising teachers for teaching physic science, natural science and mathematics more effectively. For proper orientation teachers, workshops need to be organized in DIETs to enable the teachers to prepa and handle these apparatuses.

This study illustrates how simple and improvised teaching aids can improve the qual of science teaching as was recommended by the Education Commission (1964-66

REFERENCES

1. Agarwal, Reena (1999), *Science 1 to 8*. Chennai: Tamil Nadu Text Book Corporatio
2. Agarwal, Reena. (2002), 'Problems Related to the Use of Audio – Visual Aids Science Teaching'. *School Science*, 40(1)
3. Aggarwal, Reena. (1999), *Mathematics 1to3*. Chennai: Tamil Nadu Text Bo Corporation.
4. Kar, Dhirendra Kumar. (1994), 'Dealing with Mathematical Anxieties'. *School Scienc* 38(1).
5. Nayar, Ajitha., K. and Pushpam, K. (2000), 'Willingness of Secondary School Teachers of Biology to Use Training Aids'. *School Science* 38(4).
6. Patnaik, Sabita. P., and Seetharmappa, J. (1994), 'Science Club Activities in Schools'. *School Science*, 32 (1).
7. Ram Avtar. (2000), 'New Approach to Science Teaching'. *School Science,* 38(1).
8. Shukla, R.D. (2001), 'Teaching of Science and Technology at School Level'. *School Science.* 39(1).
9. Thaker, Manhar. (2002), 'Inquiry for the Science Laboratory Effectiveness of Secondary Schools'. *School Science.* 40(1).

Appendix – I

Name: :	Max Marks	:	30
Class: :	Time	:	Min 30
Sex: :			
School:			

I. Tick the correct answer - [10x1 = 10]

1. Empty plastic bottle (sinks in/floats on) water.
2. Air (exerts/does not exert) pressure on all sides.
3. Air (does not exert/exert) pressure downward.
4. Liquids (flow/do not flow).
5. Liquids (do not take/take) the shape of the container.
6. Water flows (upward/downward) easily.
7. Liquids (do not magnify/magnify) objects.
8. Plastic bottles (conduct/do not conduct) magnetism.
9. Dumping of plastic bottles (does not pollute / pollutes) the soil.
10. During inspiration, lungs (shrink / expand).

II. Fill in the blanks [10x1 = 10]

1. Water filled plastic bottle .... in water.
2. Air has ....
3. Air pressure on a plane at different points is.................
4. Water pressure increases with ....
5. When an object sinks in a liquid, it replaces liquid equal to its own.................
6. Spirit level is useful to know the .... of the surface.
7. For germination of seeds air is...........................
8. Plants absorb water through........................
9. Soil contains small pebbles and ....
10. Plants give out .... during respiration.

III. True or False [10x 1 = 10]

1. Air does not occupy space. (   )
2. Air exerts pressure upward. (   )
3. Liquids have a definite shape. (   )
4. When water freezes its volume decreases. (   )
5. The rate of evaporation of a liquid depends upon the surface of the container. (   )
6. Water evaporates through the roots during transpiration.
7. (   )
8. Drip irrigation increases the wastage of water. (   )
9. Water exists in three states of matter. (   )
10. Human beings breathe through their skin. (   )
11. Water is essential for the germination of seeds. (   ).

18

DEVELOPING THE SKILL OF USING CHEMICAL SYMBOLS THROUGH PLAYWAY METHOD USING CUBES

R. KAILASAVANI

ABSTRACT

Playway methods and techniques have been studied by educational researchers in detail during the last two decades. It is widely acknowledged by educationists that any activity that has elements of play interests as well as enthuses students. Most elementary and secondary school teachers teach through lecture. Even science is taught through lecture which does injustice to the job because science is essentially a process-driven discipline. This study aims at developing the skill of using chemical symbols through playway methods; indirectly it yields evidence about their effectiveness as well, especially in teaching science. The study was conducted on 30 randomly selected students using the pretest-posttest single group design. A 20-item test developed by the investigator was used as the pretest as well as the posttest. The five-phase treatment was geared to teaching chemical symbols of 15 elements and rules for deriving these through activities involving the user of cubes. Data were analyzed using the 't'-ratio test. The results revealed that when taught through the playway method, students learn chemical symbols and their use quite fast.

1.0 INTRODUCTION

Science is a way of life, part and parcel of life. The understanding and application of science can help us eliminate most of the miseries in this world and improve our physical environment. Knowledge-based teaching of science cannot enable us to reap fully all the possible benefits of science. A major objective of teaching and learning of science is not only to know its content but also to develop 'scientific attitude and scientific temper'. Science has many branches. Among these CHEMISTRY is perhaps the most important one, because it involves in some measure all the other branches of science. Inorganic Chemistry deals with the study of the structure, composition and properties of matter including elements. The great scientist Berzelius introduced the use of symbols for elements because each element is made up of only one kind of atoms. The atomic structure of an element is represented by means of a symbol. In the language of chemistry symbols are used to represent elements. The practice of using symbols for chemical elements was started centuries ago by alchemists.

2.0 STATEMENT OF THE PROBLEM

The students of standard VII find it difficult to know, identify and write the symbols of elements. Therefore this study was based on the problem "Developing the Skill of Using Chemical Symbols through Playway Method Using Cubes".

3.0 NEED

The students of standard VII do not have enough knowledge about the chemical symbols in chemistry. They are able to read these symbols but are confused about using these according to the rules and conventions. They need practice and discrimination about which chemical symbols to use, when, where and how.

4.0 SIGNIFICANCE OF THE STUDY

The following describe the significance of this study:

1. The study of the symbols of elements is important for understanding the molecular formulae in learning chemistry.
2. This study can facilitate the skill of writing chemical equations fluently.
3. This study can enable practising teachers to teach chemistry more effectively and engage students' attention through the playway method.
4. It can promote among learners of interest in the field of chemistry.

5.0 OBJECTIVES OF THE STUDY

The following were the objectives of this study:

i) To enable students to identify and write the symbols of elements.
ii) To enable students to derive the symbols of some elements using the rules.
iii) To help students understand the rules for writing the symbols of elements.
iv) To develop among the students the skill of writing symbols of some elements.
v) To create interest among students for studying symbols of elements.
vi) To facilitate students' understanding about the symbols of elements with the help of cubes.
vii) To promote scientific temper among students.

6.0 HYPOTHESES

H_1. Learning symbols for elements through the playway method significantly improves students' achievement.

H_2. When taught through the playway method, students learn the rules for deriving symbols of various elements faster.

7.0 PLAYWAY METHOD USING CUBES

The investigator decided to use cubes for developing among students interest in learning chemistry, especially to enthuse students about the use of symbols.

The symbol of an element represents the atoms of that element. This is so because an element is a substance that is made up of only one kind of atoms.

Rules for writing the symbols of elements:

- Some elements are represented by using the first letter (in capital) of their English name, e.g., 'C' for carbon, 'H' for hydrogen, 'O' for oxygen, 'N' for nitrogen, and 'S' for sulphur etc.

- The names of some elements have the same initial letter, for example, Carbon, Calcium and Cobalt. This difficulty is solved by using two letters. Some elements are represented by using the first letter (in capital) of their English name alongwith the next letter in lower case e.g. 'Ca' for calcium, 'He' for helium, 'Ba' for barium, 'Al' for aluminium and 'Ne' for neon.
- Some elements are represented by the first letter (in capital) of their English name along with a letter (usually the third one) other than the second one e.g. 'Cl' for chlorine, 'Mg' for magnesium, 'Mn' for manganese, 'Cr' for chromium, 'Zn' for zinc.

8.0 METHODOLOGY

- The investigator selected as the study sample 30 students of standard VII of a Government High School in a small town of Tamilnadu. These students were selected through random sampling.
- A pretest-posttest single group design was used for the study.
- A test paper on symbols of elements, their rules and use was developed by the investigator.
- Data was collected through pretest (before the start of treatment) and posttest (at the end of treatment) on the study sample.
- The responses given by the students were scored according to the procedure already decided which has been described below.
- Data was tabulated and the descriptive statistics were calculated.

The test paper, which was used as pretest as well as posttest, had four sections A, B, C & D, of five items each. All the items carried one mark each. Sections A & B had 'fill in the blanks' and matching the items respectively while sections C & D had 'choose the correct answer' and 'true/false items' respectively. The test carried 20 marks in all.

9.0 TREATMENT

The pretest revealed that most students had a score below 10 marks. They were not able to write the symbols of elements. The investigator began the treatment and started teaching students through the playway method using cubes. The investigator stressed that chemistry deals with all matter through symbols, formulas and chemical equations. The treatment was spread over five phases which are briefly described below:

Phase I: For Motivation

Activity - 1

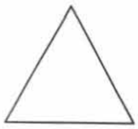
The students were asked warm-up questions like -

1. Which metal is used for making costly ornaments?
2. What are cooking utensils made of?
3. What is the composition of air?
4. Which is the lightest of all elements?

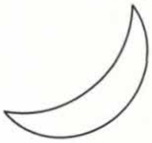
Activity - 2

The investigator explained some of the signs which were easily understood by the students. For example

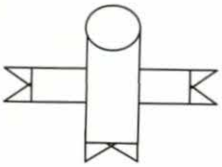
Water

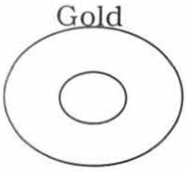


Silver

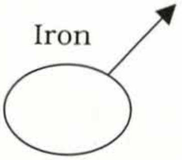


Copper





Iron



e students keenly listened to the teacher and observed the formation of these signs.

ase - II

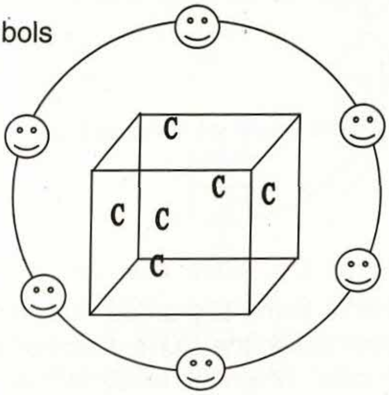
s phase aimed at making the students observe and learn the first rule of writing the bols of elements.

vity - 1

students were divided into five groups and the groups were named Jasmine, Rose, Lotus and Sunflower. The investigator asked them to sit in a circle. They were ded with five cubes with symbols of five elements written on all sides. While mine and Rose groups got a cube each with symbols 'C' and 'H' written on them spectively, the Lily group got the cube with 'O' and the Lotus and Sunflower groups t cubes with 'N' and 'S' written on them respectively.

Activity - 2

The investigator instructed the students to observe the cubes they had got. Each group was asked to tell the letter written on its cube. The five groups were seated one after another as shown in the figure below.



Observing the symbols of elements

Jasmine group at work

The other groups too worked in the same manner one after another.

Activity - 3

The investigator explained the letter on the cube and gave a detailed description of the first rule. He asked the students to identify and write the letter given on all sides of their cube. All the students in the five groups were able to say ‘C’ for carbon, ‘H’ for hydrogen, ‘O’ for oxygen, ‘N’ for nitrogen and ‘S’ for sulphur.

During this phase, the students observed that the first letter of the English name of the particular element is the symbol of that element. This phase lasted nearly 45 minutes and all the students were able to identify the five symbols of as many elements.

Phase - III

Phase-III aimed at helping the students to identify and write the symbols of elements using the second rule.

Activity - 1

The students in each group were provided with cubes having the symbol of one of the five elements written on all its sides

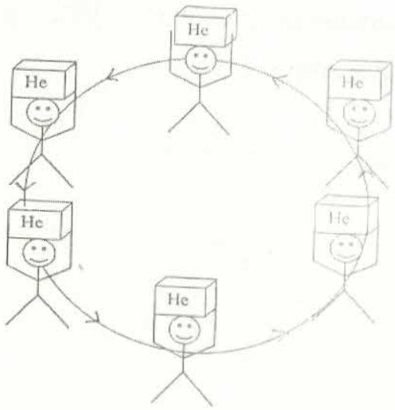
Jasmine group	Cube with “Ca”
Rose group	Cube with “He”
Lily group	Cube with “Ba”
Lotus group	Cube with “Al”
Sunflower group	Cube with “Ne”

Activity - 2

The students in each group were asked to sit in a circle with the cube. The researcher instructed each student in the group to pass on the cube to the student on his right after rotating its (the cube’s) sides. The student who received the cube was to identify the symbol and name the concerned element. Later on the other four groups were asked to play this activity one after another.

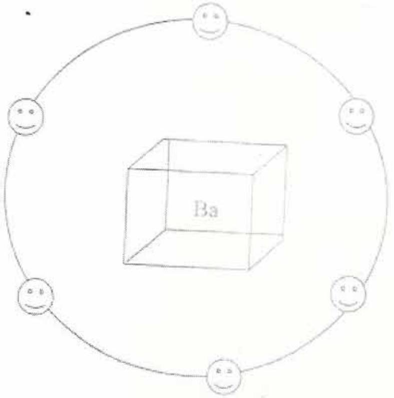
Identifying the symbols of
the elements

Rose Group at work



Activity - 3

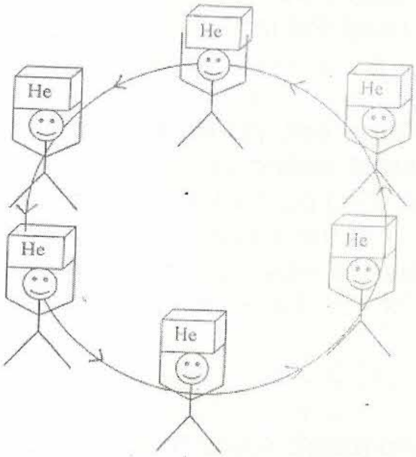
The investigator asked the students in the Lily group to stand in a circle. The cube was kept at the centre. The investigator asked the students to observe the cube till they heard the whistle blown by the investigator. When the students heard the whistle, they passed th be to other students one after another in the group till the investigator stopped w ng.



Before the whistle

Lily group standing in a circle

Observing the symbol of the element on the cube



After the whistle

Lily group at work

Other four groups did the same later on

Then the investigator asked the student who had the cube to speak and spell the symbol of the element. The other students in the group were also asked to speak and spell.

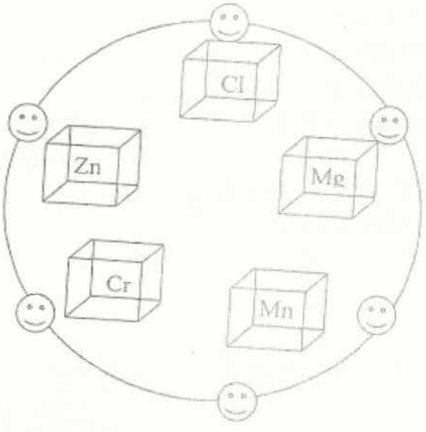
The conduct of these three activities took one hour. All the students enjoyed these activities and were able to identify and spell the symbols of elements using the second rule.

Phase - IV

Phase IV aimed at enabling the students to learn and write the symbols of elements using the third rule.

Activity - 1

The students were asked to stand in a circle in their groups (six members in each group) and had five cubes each with the name of an element written on the top and the symbol in the centre of all the sides. When the investigator started playing music, the students were asked to run in the circle at a slow pace and pass the cube on to the student immediately behind them.



Recognizin
the symbol

The Lotus group
while running

The other four groups
also did the same
later on

When the music stopped, the students stopped running. Now only 5 students had a cube each and they were asked to identify the symbols of the elements and speak out. By the end of this activity, all the thirty students were able to tell the symbols of the elements and name the elements using the third rule.

Activity - 2

The investigator put 30 cubes in a large box and each student was asked to pick up a cube at random and write the symbol written on it and also write the name of the element it stood for. The cubes were then put back in the box by each student one after another. This activity was repeated till all the students had worked on 4-5 different cubes. By the end of this phase, all the students were able to name and write the symbols and the elements each symbol stood for.

Phase - V. Evaluation Quiz

All the students were divided into two groups A and B for evaluation through a quiz. The investigator arranged a group competition by putting one question to a randomly selected member of Group A and later on put a different question to another randomly selected member of Group B. The students were to name the element if the question contained a symbol, or they had to tell the symbol if the question was based on an element. Later on, the investigator asked the students to match the given symbols with elements and vice versa and also state the three rules of deriving symbols for the given groups of elements and spell the names of the elements for the given symbols.

After the end of the treatment, students were given the posttest and their responses were scored.

10.0 DATA ANALYSIS

Students' scores on the pretest and the posttest were tabulated and descriptive statistics were calculated. Table 1 presents the results of the 't' test on the pretest and posttest scores.

Table 1: Significance of Mean Difference: Pre-test and Post-test

Test	N	Mean	S.D	"t"-ratio	Remarks
Pretest	30	24	6.4	23.076	Significant at 0.01 level
Posttest	30	75	8.3		

On the basis of these results, both H_1 and H_2 were accepted and it was concluded that students, when taught through the playway method, learn symbols of various elements and the rules for deriving the symbols faster.

11.0 IMPLICATION

The results of this study establish that students enjoy learning through playway methods and this is true of learning chemistry as well. Teachers need to think innovatively about how they should teach their students. For this, they need to be familiarized through in-service programmes with the philosophy and nature of playway methods and techniques of teaching. They also need to be shown how various playway techniques can be used effectively for teaching various subjects to students of different standards. Science teachers, especially those who teach students in elementary school, need to remember that teaching science and learning science, whatever be the branch of science, involves dealing with various processes of science and therefore their first preference should be for teaching science with the help of activities, especially those activities that have an element of play.

REFERENCES

1. Tamil Nadu Text Book Corporation, (2003),*Chemistry for standard XII* . Chennai.
2. Tamil Nadu Text Book Corporation, *Science for standard VII.* Chennai
3. Gupta, S.K. (1981), *Teaching Physical Sciences in Secondary Schools.* New Delhi: Sterling.
4. Khan, M.S. (1990), *Educational Research.* New Delhi: Ashish Publishing House.
5. Sahgal, A.C., and Sahgal, M. (1997), *Living Science.* New Delhi: Ratna Sagar.
6. Waddington, D.J. (ed.) (1984), *Teaching School Chemistry*.. New Delhi: Sterling.

19

IMPACT OF TRAINING PROGRAMMES ON THE PERFORMANCE OF TEACHERS AT ELEMENTARY STAGE OF EDUCATION: A CRITICAL STUDY

NIMMA VENKATA RAO & B.B. RAO KANDREGULA

ABSTRACT

Universalization of Elementary Education (UEE) is crucial for our national development. This study is based on the premise that the success of UEE hinges upon the performance of teachers and the factors that affect teacher performance need to be addressed on priority. This survey study was conducted on 193 teachers (Male = 96, Female = 97) drawn from two contrastive DPEP talukas of Andhra Pradesh, viz, Rolugunta and Gajuwaka. The performance levels of elementary teachers were assumed to depend upon how the DPEP training programmes impact teachers. Six variables were examined in terms of their association with teacher performance. These were sex, status of the post, teachers' professional qualifications, area of working, stay at work place and distance to work place. Data were collected with the help of a questionnaire which included items on attitude to DPEP training and elementary education. The data were analyzed through chi-square test, a non-parametric statistical technique in terms of association of each study variable with teacher performance. Stay at work place and status of the post (permanent-vs- apprentice) were found to have relatively more significant association with teacher performance.

1.0 INTRODUCTION

Universalization of elementary education has been accepted as a national goal since 1950. The directive principles of the Constitution of India envisage provision of free and compulsory education to all children. Article 45 of the Indian constitution states that the state shall endeavor to provide free and compulsory education for all the children up to the age of 14 irrespective of caste, creed, colour, sex, and religion. It should be achieved within the period of 10 years from the implementation of the Constitution or latest by 1960.

Even 55 years after India's freedom, we have not been able to achieve the desired targets. Moreover, the attainment of UEE still remains a slogan, a catch word or at best a dream. The reasons for the non-attainment of UEE targets are many and varied, viz., economic constraints on the part of the government in regard to budget allocations, lack of commitment of political parties, poverty, illiteracy of parents, parental ignorance about the need and importance of education, mismatch between the training and placement of teachers at primary level, ineffective supervision, assigning non-academic tasks to teachers, e.g., house listing operations, enumeration, door-to-door survey and midday meals and teachers' inability to stay in the villages where they are posted. As a consequence of these, many children initially enrolled in the school do not complete their primary schooling.

Prin education occupies a significant place in the reconstruction of a developing cou It is at this stage that the child starts attending a formal school. The National Pol n Education, 1986, emphasizes the importance of giving special attention to qu aspects of primary education. Several programmes including those on teacher tra have been formulated for this purpose. The National Policy on Education, 1986 ga h priority to UEE. The policy also recognized that unattractive school environment, un actory conditions of school building and insufficiency of instructional material fu as demotivating factors for children and their parents. Therefore it laid emphasis or substantial improvement of primary schools and adequate provision of support se s. A variety of measures have been proposed by the Union Government for se g participation of girls and boys from the deprived and under-privileged sections of society.

A mmittee under the chairmanship of Mukhi Ram Saikia, Minster of State in MHRD, Go rnment of India, recommended that the Constitution should be amended and “the rig to free primary education be made a fundamental right”.

V us schemes and in-service training programmes have been designed and in ented in most of the states in the country to update teachers' knowledge of c t and methodology. Chief among these are OBB, APPEP, SOPT, UEE, Joyful L ng, MLL, DPEP and SSA. Under various schemes and programmes, physical f s in the schools have been increased, pucca buildings constructed, and single t r schools have been reinforced through posting of additional teachers. In the s f Andhra Pradesh under different spells of DSC 1990, 1998, 1999, 2000 and 2002, 1.5 lakh additional teachers were recruited to strengthen primary education. ng water facilities have been provided by digging bore wells, separate toilets for ave also been constructed. For the preparation of additional teaching learning ial, each school has been sanctioned an amount of Rs. 2,000 and each teacher h been sanctioned an amount of Rs.500/-.

After OBB, a number of new projects were launched to strengthen primary education with financial assistance from the UK and other donor countries – chief among these were APPEP in Andhra Pradesh, Bihar Education Project in Bihar, Uttar Pradesh Education Project in UP, and Siksha Karmi Project of Rajasthan. Later on, with the financial assistance from the World Bank, UNDP and ODA, the DPEP programme was started in several states in India in 1994 with the district as the basic unit. In the state of Andhra Pradesh during the first phase of DPEP in 1996, five districts, viz., Vizianagaram, Nellore, Warangal, Karimnagar and Kurnool were selected as a pilot study for the programme. These districts were selected because of (1) their successful implementation of TLC programmes, and (2) low female literacy rate much below the national average. In the second phase, another 14 districts were covered including Visakhapatnam and in the third phase, the remaining 4 districts, viz., Hyderabad, Krishna, East and West Godavari were also covered.

2.0 THE RESEARCH PROBLEM

As the DPEP is an ongoing programme, it was felt that an in-depth study on its working and impact was necessary. This study could lead to a follow-up action and help evolve a strategy for making SARVA SIKSHA ABHIYAN effective, thereby helping the state attain universal retention by 2010.

3.0 OBJECTIVES OF THE STUDY

- To assess the attitudes of the teachers towards various training programmes conducted for them.
- To ascertain the improvement in teachers' performance due to participation in the DPEP programmes.
- To suggest additional measures for improving further the quality of elementary education.

4.0 METHODOLOGY AND DATA COLLECTION

District Visakhapatnam has 43 mandals. In trying to understand the DPEP training and its impact on qualitative improvement in elementary education, two contrasting mandals namely Rolougunta mandal (rural with low literacy, 42.37%), Gajuwaka mandal (urban, high literacy, 79.66%) were selected for the present study.

Thus, the setting for the present study is quite contrastive on two parameters: Gajuwaka is an urban municipality and nearer to a municipal corporation while Rolugunta is essentially a rural area. In terms of literacy rates, the two mandals provide a sharp contrast; literacy rate in Rolugunta is almost 53% of that of Gajuwaka. Data were collected with the help of a questionnaire with items on attitude to DPEP training and elementary education. This tool was developed by the investigator.

5.0 STUDY VARIABLES

The following six variables were taken up in this study. 1. sex, 2. status of the post, 3. professional qualifications, 4. area of working, i.e., rural or urban, 5. stay at work place, and 6. distance to work place. The data were collected from the elementary school teachers of two mandals, viz. 1) Rolugunta, 2) Gajuwaka by administering the questionnaire which consisted of 34 items by eliciting responses on a 3-point scale.

6.0 RESPONDENT SAMPLE

A total of 193 teachers were selected as respondents for the present study. Out of 193 teachers, 89 were from the Rolugunta mandal and the rest, i.e., 104 from the Gajuwaka mandal. Adequate care was taken in selecting the schools and the teachers in each mandal so that the respondents were truly representative of their respective mandals.

The present study seeks to ascertain the improvement in the performance of the teachers due to participation in the DPEP training programmes and to assess the attitude of the teachers towards various training programmes conducted for them.

Sex-wise and mandal-wise distribution of the respondent sample is as given in Table 1 below:

Table 1: Teacher Sample: Sex-wise and Mandal-wise

MANDAL	TEACHERS		TOTAL
	Male	Female	
Rolugunta	74	15	89
Gajuwaka	22	82	104
Total	96	97	193

e questionnaire was administered on the teachers at their schools and Teachers ntres. It consists of two types of items: 1. Open ended 2. Close ended.

ne investigator adopted the three-point scale to elicit responses from the teachers. The st page of the 8-page questionnaire seeks information on the socio-economic background the respondents while the next three pages contained questions on the various arametes of DPEP awareness. The remaining four pages presented questions on arious DPEP training programmes that the respondent teachers had participated in. hi-square test was used to analyse the association between the performance and elected variables.

0 ANALYSIS OF THE DATA

ariate tables based on the data were developed and chi-square test was applied for ablishing the association between the performance of the teacher and certain ected socio-economic and educational variables. As already described under 5.0, the riables were sex, status of post, professional qualifications, area of working (rural or ban), stay at work place and distance to work place.

1 Sex and Performance of Teachers

ll teachers were categorized as male or female. Out of the 193 teachers, 96 teachers were male and the remaining 97 teachers were female. Of 96 male teachers, 68% had average or below average performance and the remaining 32% had above average performance. Of 97 female teachers, 77% had average and below average performance and the remaining 23% had above average performance (see Table 2).

TABLE 2: PERFORMANCE OF TEACHERS X SEX

Sex	**Average and Below**	**Above Average**	**Total**	**Chi-square**
Male	65 (68.00)	31 (32.00)	96	39.51
Female	75 (77.00)	22 (23.00)	97	
Total	106	87	193	

The result of the chi-square test shows that there is significant association between the teachers' sex and their performance level. The calculated chi-square value is 39.51 and it is significant at 0.01 level.

From the above analysis it appears that the performance of male teachers is sligh higher than that of the female teachers. It may be because female teachers, if marri have to manage the household and also the job. They have to work on two fronts. M teachers, on the other hand, do not have much to worry about the domestic front. Th can therefore concentrate more on their duties and are more involved in all the DP training programmes. The majority of female teachers, on the other hand, do not st at their working place; they commute to and from the nearest town and for secu reasons cannot stay at their place of work. Hence their performance is relatively lov when compared to that of the male teachers.

7.2 Area of Working and Performance of Teachers

All the teachers were classified according to their area of working into two categori rural and urban. Out of the 193 teachers, 89 were working in the rural area and th remaining 104 teachers were working in the urban area. Out of 89 rural worki teachers, 17% have average or below average level of performance and 83% ha above average level of performance. Out of 104 urban teachers, 87.5% have avera or below average level of performance while only 12.5% have above average level performance (Table 3).

Table 3: Performance of Teachers X Area of Working

Area of Working	Level of Performance			
	Average and Below	Above Average	Total	Chi-square
Rural	15 (17.00)	74 (83.00)	89	96.68
Urban	91 (87.5)	13 (12.5)	104	
Total	106	87	193	

From the above analysis we can say that the performance of rural area workir teachers is higher than that of urban teachers. This is possibly because most of the rura teachers live where their working place is located and there are hardly any distractions or other such activities in rural areas. So, they show more interest to involve themselves in DPEP training programmes at teacher centres as well as discharging their duties as teachers.

The chi-square test shows that there is a close association between the area of working (i.e., rural/urban) and teachers' performance. The chi-square value is 96.68 and it is significant at 0.01 level.

7.3 Status of Post and Performance of Teachers

All teachers were classified into 2 categories on the basis of the status of their post, viz., Permanent and Apprentice. Out of the 193 teachers, 171 were permanent and only 22 were apprentice teachers. Of the permanent teachers, 100 had average or below average performance and the rest, i.e., 71 had above average performance. Of the 22 apprentice teachers 6 were average or below average in their performance and the rest, i.e., 16 were above average (Table 4).

Table 4: Performance of Teachers X Status of post

Status of Post	Levels of Performance			
	Average and Below	Above Average	Total	Chi-square
Permanent	100 (58.47)	71 (41.52)	171	7.67
Apprentice	6 (27.27)	16 (72.73)	22	
Total	106	87	1 93	

is obvious from the above analysis that the performance level of apprentice teachers higher than that of permanent teachers. The results however, cannot be taken as onclusive because the sample size of apprentice teachers is quite small, i.e., only 22 hen compared to that of permanent teachers. Most apprentice teachers are unmarried, nd they feel insecure about their job because their services are yet to be regularized. oreover, they are fresh from their training institutions. So they are most likely to articipate well in the DPEP training programmes as well as perform better in their uties as teachers.

he chi-square test shows that there is a close association between the status of post nd the performance of the teachers. The calculated chi-square value is 7.67, and ence it is significant at 1% level.

4 Professional Qualification and Performance of Teachers

ll teachers were classified into three categories, viz., graduates (B.Ed.), diploma olders (D.Ed.) and postgraduates in Education M.Ed.). Out of the 193 teachers, 148 ere graduates, 39 were diploma holders and 6 were postgraduates in Education. Out f the 148 B.Ed.s, 88 were average or below average in their performance and 60 were bove average. Of the 39 diploma holders in Education, 14 were average or below average in their performance and 25 were above average. Out of the 6 postgraduates in Education (M.Ed.), 4 were average or below average in their performance and the remaining were above average, (Table 5).

Table 5: Performance of Teacher X Professional Qualifications

Professional Qualification	Level of Performance			
	Average or Below	Above Average	Total	Chi-square
B.Ed.	88 (59.00)	60 (41.00)	148	7.27
D.Ed.	14 (36.00)	25 (64.00)	39	
M.Ed.	4 (67.00)	2 (33.00)	6	
Total	**106**	**87**	**193**	

It is obvious from the above analysis that the performance of the diploma holders Education is better than that of M.Ed. and B.Ed. teachers. Perhaps the performance the diploma holders in Education is better because they have more appropriate stag specific qualifications and pre-service training. Besides, they are increasingly involvi themselves in DPEP training programmes and also performing their duties as teache

The results of the chi-square test show that there is a close association betwe professional qualifications and the performance level of teachers. The obtained value chi-square is 7.27 and it is significant at 0.01 level.

7.5 Stay at Work Place and Performance of Teachers

All teachers were classified into two categories: 1. those who stay at their work plac and 2. those who do not stay at work place. Of the 193 teachers, 109 teachers wer not staying at their work place and the rest 84 teachers were staying at their work plac Out of the 109 not staying teachers, 75 have average or below average performance an 34 have above average performance. Of the 84 staying teachers, 31 were average below average in their performance and the remaining 53 were above average. (Tab 6)

Table 6: Performance of Teachers x Stay at Work Place

Stay at Work Place	**Level of Performance**			
	Average or Below	**Above Average**	**Total**	**chi-Square**
Not staying	75 (69.00)	34 (31.00)	109	19.5
Staying	31 (37.00)	53 (63.00)	84	
Total	**106**	**87**	**193**	

The above analysis reveals that the performance of staying teachers is higher than tha of not staying teachers. Perhaps the teachers who stay at their work place have more time and greater interest to serve the school. Besides, they involve themselves in all the DPEP training programmes with a great deal of interest at the teacher centres and in performing duty as teachers.

The result of the chi-square test reveals that there is a close association between staying/not-staying at work place and the performance of teachers. The obtained value of chi-square is 19.5 and it is significant at 0.01 level.

7.6 Distance to Work Place and Performance of Teachers

All respondent teachers were classified into two categories: (1) upto 20 Km distance from work place; and (2) above 20 Km distance from work place. Of the 193 teachers, 125 teachers were residing at a distance upto 20 Km. from their work place and the remaining 68 teachers were residing at a distance above 20 Km from their work place. Of the 125 teachers residing at a distance below 20 Km from their work place, 53 were average or below average in their performance and 72 were above average in their performance. Of the 68 teachers residing at a distance above 20 Km from their work ce, 53 were average or below average in their performance while the remaining 15 e above average (Table 7).

Table 7: Performance of Teachers X Distance from Work Place

	Level of Performance			
Distance to Work Place	**Average or Below**	**Above Average**	**Total**	**Chi-square**
Below 20 km	53 (42.00)	72 (58.00)	125	22.47
Above 20 km	53 (78.00)	15 (22.00)	68	
Total	**106**	**87**	**193**	

ese data indicate that the performance of teachers who reside at a distance below km from their work places perform at a higher level than those who reside at a tance above 20 km from their work place. Perhaps this is because the former have re time to participate enthusiastically in teaching-learning activities as compared to latter. Moreover, the former have greater academic interest than the latter. As a ult of this the former group involves itself much more in DPEP training programmes eacher centres as well as in performing duties as teachers.

e result of the chi-square test shows that there is a close association between the tance to working place and the performance of the teachers. The obtained value of i-square is 22.47 and it is significant at 0.01 level.

0 MAJOR CONCLUSIONS AND THEIR POLICY IMPLICATIONS

this study, we have attempted a quantitative analysis of the determinants of the erformance level of teachers working under the DPEP. A notable feature of this analysis is that there is a consistency in the results.

The purpose of the analysis was to relate teachers' performance with other socio-economic parameters like sex, area of working, status of job and professional qualifications, distance to work place and stay at work place. The chi-square test can help us determine the significance or non-significance of the association between the performance and specific socio-economic and academic variables.

The results of the chi-square test establish that the performance of teachers is significantly associated with each of the six variables taken up in this study.

The policy implications of these statistical results focus on two important determinants of the performance of teachers, viz.,
(a) Stay at the work place, and (b) Status of the post

The results regarding the other four variables do not provide much scope for policy intervention.

Even though there is a Government Order (G.O.) directing the teachers to reside at the work place, the reality is that a substantial number of teachers (109 out of 193) are not staying at the work place. This may be considered as one of the major failures of the management of the DPEP programme. The programme manager should attend to this crucial determinant of teachers' performance. Attempts must be made to implement the G.O. and it must be ensured that the teachers stay at or near their work place.

The second major conclusion of the study is that a teacher's performance depends a good deal on the status of his/her post. This study reveals that the performance of the vast majority of apprentice teachers (73%) is higher than that of most of permanent teachers.

The policy implications of this finding reveal that excessive job security of teachers leads to considerable deterioration of their performance.

The success of any educational programme depends a good deal on its right management. For successful implementation of Sarva Siksha Abhiyan the state governments would do well to ensure that these two variables, viz., stay at work place and status of job receive the attention they deserve.

20

EFFECTIVENESS OF INTERVENTIONS UNDER EGS AND AIE SCHEME FOR UNIVERSAL ENROLMENT

P. JAYARAMAN

ABSTRACT

This case study of District Erode, Tamilnadu, examines the effectiveness of the interventions provided through Education Guarantee Scheme (EGS) and Alternative and Innovative Education (AIE) for attainment of universal enrolment under Sarva Shiksha Abhiyan (SSA). District Erode, a non-DPEP district, was selected as the case because of the lower literacy rate (65%) vis-à-vis that in other districts of Tamilnadu. Poverty and parents' illiteracy are the two major reasons that make this district worthy of the case study. The investigator focuses in this study on various interventions like Alternative Day Schools, Bridge Courses, Transit Camps, Residential Camps, Home-Based Training etc. for universal enrolment and mainstreaming. Using a variety of qualitative techniques for data collection, the investigator presents results in respect of the out-of-school children, enrolment, teaching workforce, support system, teaching-learning materials, infrastructure, achievement, attendance and mainstreaming for 20 blocks of the district.

1 INTRODUCTION

In terms of literacy rate, the stage of Tamilnadu enjoys a higher position (73.44%) than the national average (65%), but among its districts, district Erode ranks quite low. According to the 2001 census, the literacy rate of Tamilnadu is 73.44% (male 82.23% and female 64.55%). In district Erode, the literacy rate is close to the national average of 65.51% (male 75.49% and female 55.26%). The low literacy rate here is primarily due to poverty and parents' illiteracy.

In this district, the population of the children of school going age is 3,48,451. Out of these 3,30,055 are students; 2,14,907 are in government schools and another 1,15,148 are enrolled in schools under other managements. However, 18,396 children were found to be out-of-school as revealed by the household survey, 2000. In the last two years (as per the DISE data of 2000-01 and 2001-02), out of the 18,396 children, only 8% have been mainstreamed in formal school and the remaining 14% are not considered for the dropout account in SSA because of their being overage. Hence for the year 2002, only 78% of 18,396 out of school children have to be taken into account. (Source: SSA 2000-01 and 2001-02).

Providing free and compulsory education to all children up to the age of 14 years (under Article 45 of the Constitution) has become the duty and commitment of the state. Efforts have been made to provide universal access to education by seeking universal enrolment and retention. The initiative of SARVA SHIKSHA ABHIYAN (SSA) is an important strategy in this direction. In order to achieve the mission of UEE, alternative systems along with the formal school structure have to be promoted and strengthened.

The initial education meant for all will comprise essential life skills for all pote al learners for meeting their learning needs. This is one of the important concerns of U E.

As an improvement of the scheme, several plans were thought of. The experie e gained from programmes like Lok Jumbish, the DPEP and other innovative sche s adopted by voluntary agencies and NGOs shows that programmes for the out-of-sc l children could be implemented successfully with considerable community support d a reasonable concern for quality. Since the nature of the 'out-of-school' childre s diverse, a variety of strategies would be required to ensure their participatio n elementary education. Close linkages need to be built between the local community d Alternative Schools (AS) to ensure their effectiveness. Considerable emphasis need o be put on quality aspects including the hours of teaching, the instructors' preparat , teaching learning materials and regular academic support. The centrally sponso d scheme of SARVA SHIKSHA ABHIYAN has now set time bound targets for e achievement of UEE.

The emphasis of SSA is on the mainstreaming of school children through dive e strategies and on providing eight years of schooling to all children in the age grou of 6-14 years. There have been several innovative schemes like Operation Blackbo d, Teachers' Orientation in non-formal education, Mahila Samakhya, National Progra e for Nutritional Support for primary education, state specific education projects an e DPEP. It is proposed to integrate these programmes in the fold of SSA in an approp e way. In the education sector, Non-Governmental Organizations (NGOs) and Volu y Agencies (VAs) have been making meaningful contributions. The restructured E Schemes called EGS and AIE will now be a component of the SSA and woul e amalgamated into it by the end of the Ninth Five Year Plan. The SSA programme w d provide the planning and management support to operationalise EGS and AIE sche s.

The scheme gives preference to opening up of schools and centres in ten educatio y backward states that have already been identified, viz., Andhra Pradesh, Assam, Bi r, Himachal Pradesh, Jammu and Kashmir, Madhya Pradesh, Orissa, Rajasthan, U ar Pradesh and West Bengal. However, alternative education intervention for spec ic categories of deprived children would be supported in other states as well. In order to avoid duplication of efforts it has been made clear that in districts where centrally sponsored or externally funded projects like the DPEP and LJP are already going on, the intervention would continue till the expiry of the project period. In such districts, EGS and AIE could support certain interventions for older children who are not covered under the DPEP or for very specific groups of deprived children and for reasons when funds under the project are found to be insufficient. (Sandhya Sangai, 2002).

In Tamilnadu, 7 districts were selected for the DPEP and their project period has been completed, but Erode is a Non-DPEP district. Under SSA, the EGS and AIE scheme is in progress in Erode district. In this district, the focus of the scheme is to ensure participation of all the out-of-school children (18,396 and 14,248 for the years 2000-01 and 2001-02 respectively) including the working children (more than 50% including the overaged, i.e., 14+), migrating children (1037), street children (51) and children living in small and unserved habitations (854). Besides bringing the children to school, attention would also be paid to quality-related issues including teaching strategies. Quality cannot be attained without providing certain facilities like the minimum infrastructure (i.e. free houses, shelter etc.) and a reasonable honorarium (say, Rs. 1000 per month) to the instructo d regular academic support (i.e., by the Instructor, the BRC Teacher Educato e DIET personnel, some Voluntary Agencies etc.). To control child labour, it has be nsured that the duration of part time alternative schools (428) under AIE will be atlea ur hours a day.

2.0 RTANCE OF THE STUDY

EGS ar E centres cannot be a substitute for dysfunctional schools, but they would provide ible strategies for specific groups of children like street children, wage earning dren, adolescent girls, migrating children and other such groups of children as do easily enrol themselves in regular schools. It has also been planned that through ular interventions, efforts will be made to mainstream the children in formal schools. GS and AIE would not prevent the strengthening and improvement of regular schools. clearly states that the initial target of the Erode district should be the 5+ to the 12+ e group (1472 and 1170 out-of-school children as in 2001-02 and 2002-03 respecti) and to bring them to formal schools. The children can be motivated to attend ols by organizing motivational camps. In Erode district, such camps were conduc n 20 blocks with the help the students and the personnel of the DIET.

The ai the case study was to find out the effectiveness of interventions like Alterna Day Schools (EGS), Bridge Courses, Transit Camps, Residential Camps, Open ols, the Direct 8th standard Elementary School Leaving Certificate (ESLC) exami , Home Based Training etc. for universal enrolment and also mainstreaming these nts.

3.0 D FOR THE STUDY

The effectiveness of various strategies for different groups of children is mostly based on the enrolment, regularity, interest towards education, teaching-learning, and mainstreaming at the macro-level. It may not hold good for the micro-realities. Hence, the need for the present study. One has to look for the formations and functions of the various strategies/interventions that guide the out-of-school children to continue their formal education and that motivate their parents' interest to mainstream them and also to show the achievement of the first target of the SSA, i.e., 100% enrolment.

4.0 OBJECTIVES

The objectives of the study were:

- To study the ground realities, through case study approach, pertaining to the interventions that lead the out-of-school children to pursue formal education.
- To scrutinize the interventions under the EGS and AIE Scheme at the micro level to understand their macro dimensions.
- To examine the effectiveness of the interventions or strategies under the EGS and AIE Scheme in terms of 100% enrolment.

5.0 DESIGN OF THE STUDY

The research design was based on the principles of applied case study in 1994; reported in Jessop, 1998, and Best & Kahn, 1999). Tools such as E ;, DISE, Household Survey, observation, focus groups discussion and documenta analysis were used for the collection of empirical data. In addition to the data collecte rom out-of-school children's parents, other informants included the Village Education mmittee (VEC) members, Self-Help Groups (SHGs), NGOs and the general public. ordingly, the basic information was collected in respect of all households in 20 cks and primary, upper primary, high and higher secondary schools of the panch t union. (Nityananda Pradhan, 2001).

The data collected through qualitative techniques, such as interviews, obse ation and focus-group discussion were used to describe the opinion, attitude, and beha our of the informants with regard to the subject of the study. The quantitative data ave been presented in terms of numbers and percentages to supplement and bstantiate qualitative reporting.

6.0 CASE PROFILE

The Erode district in Tamilnadu is located between 10.36° and 11.58° of the tude and between 76.49° and 77.58° of the east longitude and is at the mean sea lev f 171.91 metres. The total area of the district is 8,16,191 hectares. The district ha 0 blocks (viz., Ammapet, Anthiyur, Bhavani, Bhavanisagar, Chennimalai, Dharampu , Erode, Gobi, Kangayam, Kodumudi, Kundadam, Modakkurichi, Mulanur, Nambiyur rundurai, Sathy, Thalavadi, T.N. Palayam, Uthukuli and Vellakovil). Among these block halavadi is predominantly a hilly area and 25% of the area of Sathy, T.N. P am and Bhavanisagar blooks is covered by hills. The remaining blocks are mostly in.

According to census 2001, the total population of the district is 25,74,067, of which 13,06,039 are male and 12,68,028 female. Erode district has a favourable x ratio of 971. The total SC and ST population in the district is 4,22,737 (male: 2,13,1 , female: 2,09,595) and 21,313 (male: 10,768, female: 10,545) respectively. During the ield study based upon observation and focus-group discussions, the investigator found the quality of life of the majority of the out-of-school children's parents as being below the poverty line. Most of the children are working as child labour and in the age group above 11+ to 12+. In the focus-group, girl children are mostly involved in taking care of their siblings, domestic work, wage earning etc.

According to the Household Survey and DISE 2000-01, the school age population (5+ to 12+) is 3,48,451, but, by projection for 2002-03 it is 3,55,412. Out of these, the total number of the children enrolled in the year 2002-03 is 3,35,044. The remaining children are enrolled through various innovative strategies under EGS and AIE, and later on, they are mainstreamed after successful completion of the course. The details about these are shown in Table.1 given at the end.

7.0 RESULTS AND DISCUSSION

Strategies/interventions under EGS and AIE in ten areas, viz., out of school children, enrolment, teaching workforce, support system, teaching-learning materials, curriculum transaction, infrastructure, achievement rate, attendance rate and mainstreaming, i.e., progress, were examined to understand the issues involved in educating the children of the target group.

7.1 EGS and Alternative Day School

In the district of Erode, out of 20 blocks, only 7 blocks have 37 schools of this category. In these 7 blocks, Sathy (10), Thalavadi (20) and Anthiyur (3) have more schools due to their hill area, because they have more school less habitations and their access rates are 97%, 96% and 99% respectively. The remaining blocks, viz., Ammapettai, Kankayam, Modakkurichi, and T.N. Playam have only one school each. In these schools 920 children (485 boys and 435 girls) out of the 16,672 out-of-school children are enrolled in different classes, mostly in standards I and II. Each school has only one instructor with a monthly salary of Rs. 1000/. The minimum infrastructure facilities have been provided by their respective VECs. The support systems for these schools are VECs, BRCs, the DIET and the DPO, the BRC and DIET provide academic support and training. The DPO provides the financial support like salary, TLM grant etc. The DPO made Rs. 2500/- available for procuring the necessary teaching learning materials and Rs. 1100/- for TLE per school. The total expenditure for this was Rs. 21,125/- per year per school. The curriculum transaction techniques in these schools are the same as those in formal schools. The achievement and attendance rates are 64% and 73% respectively. The progress is assessed periodically by VECs, AEEOs and BRCs as in the case of formal schools. (DISE 2002-03 and SSA monthly report, Nov. 2003).

From the above point of view of access rate at the primary stage, the condition of the 3 blocks is lower as compared with the other blocks of the district. The reasons enumerated at the macro-level for poor enrolment among tribal children are almost the same as those for the high rate of dropout, e.g., the economic state of the tribal children, lack of conducive atmosphere at home and school, hilly area, low access, etc. (SSA: HOUSEHOLD SURVEY 2000). The study however found that giving proper access through ALS would improve the GER and NER by nearly 100% and these facilities will sustain the quality of education.

7.2 Alternative Innovative Education (AIE)

(a) Bridge Courses and Transit Camps

In Erode district, the following 20 blocks conduct different numbers of Bridge courses and Transit camps shown within brackets against their names in the same order:

1. AMMAPET (43+3); 2. ANTHIYUR (33+5);3. BHAVANI (35+3); 4. ERODE (30+7); 5. GOBI (19+0); 6. KUNDADAM (14+3); 7. MODAKKURICHI(12+1); 8. PERUNDURAI (38+4); 9. SATHY (26+11); 10. THALAVADI(17+3); 11. T.N.PALAYAM; (15+5); 12.UTHUKULI(21+11); 13. BHAVANISAGAR (5+5); 14. CHENNIMALAI (1+1); 15. DHARAPURAM (9+8); 16. KANGAYAM (7+0); 17. KODUMUDI (9+0); 18. MULANPUR (2+1); 19. NAMBIYAR (9+4); and 20. VELLAKOVIL (7+0).

Therefore, as on June 2003, Bridge courses and Transit camps are conducted at 352 centres. In these courses and camps, there are 7828 students (3616 boys and 4212 girls) out of the 16,672 out-of-school children enrolled in standards I-VIII depending upon their age*. Each centre has a minimum of 15 and a maximum of 20 children, whereas each camp has 10 to 15 children. Each centre as well as camp is run by only one instructor who receives a salary of Rs. 1000/- a month. The infrastructure facilities for these centres and camps are the minimum and these are provided by VECs. The VECs, BRCs, the DIET and the DPO work as a support system and strengthen these centres. The academic support and training are provided by the BRCs and the DIET while financial needs of the centres and camps are met by the DPO. Financial help of Rs. 2500/- is given for preparing teaching learning materials at the primary level and Rs. 4500/- at the upper primary level. Therefore, the total expenditure for each primary centre is Rs. 7550/- and for each upper primary centre Rs. 10,000/-. An adaptable multigrade curriculum has been framed by DTERT and it is executed by the DIET through BRCs. The achievement and attendance rates are 42% and 67% respectively in bridge courses. However, the achievement and attendance rates in the transit camps are 39% and 61% respectively. The progress of the centres and camps is assessed periodically by VECs , AEEOs, BRCs and the DIET. 1701 children (784 boys + 917 girls) have been mainstreamed in formal schools under the 'Back to School' programmes upto November, 2003. (DISE 2002-03 and SSA monthly report, Nov. 2003).

But 7,828 children out of 16,672, are enrolled in 352 Bridge courses and 75 Transit camps. These children are mostly from families below the poverty line and some of them are street children. The analysis, however, shows that in order to achieve 100% enrolment including the special focus groups, viz., girl children, working children etc, these centres motivate the children to restart and continue with their education. The functioning of these centres and camps reveals some weaknesses too like poor attendance, lack of usage in TLM, lack of linkage between the parents and the centres' instructors.

(b) Residential Camps

Erode district has only one residential camp on the CSI School campus. There are 50 (SC and ST = 16 and OBC = 34) boys enrolled as per the SSA report of Nov. 2003. These students are in the age group of 10+ to 12+. This camp has two instructors who receive a salary of Rs. 1000/- per month each. The CSI School management provides infrastructure facilities for the camp and some NGOs provide clothes to the children. The DIET and Erode BRC provide academic support and training. Financial support is provided by the DPO for preparing teaching learning materials. The total expenditure on each student of the camp is Rs. 3000/- for six months, i.e., Rs. 1,50,000/- per camp of 50 students. There is an adaptable multi-grade curriculum developed by the DTERT and implemented by the DIET through BRCs. Achievement and attendance rates are 59% and 73% respectively. The progress at the camp is assessed periodically by VECs, AEEOs, BRCs and the DIET (DISE 2002-03 and SSA report Nov. 2003).

The 50 children enrolled in this camp out of the 16,672 out-of-school children are mostly street children, orphans, deprived children, of the age group of 10+ to 12+. They are mainstreamed after the completion of the course in the camp. This bears testimony to the effectiveness of the camp in achieving 100% enrolment and enrolling children from special focus groups, viz., street children, orphans, etc. Participating in this camp motivates children to take up their education afresh.

(c) S.L.C. Direct Examination and Open School System

In Erode strict, there are 392 children of the age group of 13+ who were to appear in ESLC u the SSA Scheme, but only 140 of them actually appeared in the examination in 2003 e remaining children continue their education under this scheme. There are 3,113 c en of the age group of 13+ who are to be prepared for enrolment in the Open School rected by the state and central governments. Therefore, there are 3,505 out-of-scho ildren of the age group 13+ who are to be prepared for mainstreaming. The SSA s rts them in their continuing education financially and arranges special coachi d course materials for these children to enable them to appear in the next ESLC ination. (DISE 2002-03 and SSA report, June 2003).

This ca study shows that there are 3,505 children of age group 13+ out o the total of f 16,67 hildren, mostly working children and street children. These children are now willing t ontinue their education which establish as that this strategy is quite effective in imple enting the provision under that Article 45, i.e., providing education for all.

7.0 JOR IMPLICATIONS

The m findings of this study and their implications are as follows:

Enroln of the out-of-school children under EGS and AIE is very good. There are 759 childre the relevant age group (5+ to 9+) and 161 children in the relevant age group (10+ +) enrolled in alternative day schools under EGS. There are another 3323 childre the age group of 5+ to 9+ and 5555 children in the age group of 10+ to 12+ enrolle Bridge courses and Transit camps under AIE. Besides, there are 50 children in the group of 5+ to 12+ enrolled in Residential camps under AIE.

The p ratory work for continuing education of the out-of-school children who are overag indeed a tremendous one. There are 3113 children of the age group of 13+ and ab e who are now ready to continue their education through the open school system. 140 out of the 392 children of age group of 13+ appeared in the last ESLC examination.

The mainstreaming of the out of school children is quite satisfactory. The data on this aspect are indeed heartening. 1472, 1170 and 1701 children of the age group 5+ to 12+ were mainstreamed in formal schools in the years 2001, 2002 and 2003 respectively. This process continues even today.

The dropout rate of the out-of-the school children who are enrolled under EGS and AIE is quite low. Only 2% of the children of age group 5+ to 9+ and 4% of these in the age group 10+ to 12+ dropped out from bridge courses, transit camps and residential camps due to various factors, e.g., unruly behaviour, poverty, child labour, etc. Transit camp children had a relatively higher drop out rate than children under other interventions. The support system to EGS and AIE which mainly comprises 489 text book sets and 298 condensed course materials supplied to the children, is of relatively poor quality. It needs to be improved.

The AIE centres rarely use teaching-learning materials.

Some AIE centres are even better than formal schools in the district in terms of their teaching-learning process. Some Bridge courses are characterized by poor rate of attendance; the attendance in some transit camps is indeed low. The educated unemployed appointed as instructors had insufficient training, i.e., 13 days or less against the period of 20 days as prescribed under the SSA norms. This needs to be improved. In terms of evaluation, through periodical assessment of EGS schools and AIE centres and camps on the twin criteria of the teaching-learning process and the children's achievement, the results are quite low as compared to those under the formal school system. The linkages between the VEC members and the AIE instructors are quite inadequate.

The findings of this study have significant implications for instructors, BRCs, AEEOs, DPOs, DIETs, VECs, NGOs and Researchers, especially under the Government of Tamilnadu so far as the DEEP, the DTERT and the DEE are concerned. The following deserve special attention.

- Strengthening the support system is the basic requirement for further reducing the dropout rate and attaining the target of 100% enrolment. Every AIE centre/camp needs to be made effective by providing sufficient textbooks and other course materials.
- Strengthening the supervision mechanism is essential for improving the attendance rate and achievement. For this, more periodic attention needs to be paid to the transit camps on a regular basis.
- Strengthening the training programme for the educated unemployed instructors is essential. This can be ensured by emphasizing that each instructor completes 20 days of training as per the SSA norms;
- Strengthening the linkages between the VECs and AIE centres/camps. Instructors can help further tone up their effectiveness.
- Formulation of a district and state level evaluation plan and conducting research on EGS and AIE under EREM of SSA needs to be taken up on priority.
- There must be no discrimination between the AIE centres/camps and formal schools in the matter of mainstreaming the out-of-school children.

Table – 1: Details About the Out of School Children and Their Interventions

Sr. No.	Content	2001	2002	2003		
I.	Out of school Children					
	i. At the start of the year	18396	14248			14093
	a. No. of children main-streamed in formal school (-)	1472	1170			1701* -----
	b. No. of overaged children (-)	2676	1409			-----
ii.	No. of dropouts (+)	-----	2424			1998
	Total	14248	19151			16091
II	EGS			Primary	Up-Primary	Total
	a. No. of AL Schools					37
	b. No. of children enrolled (+)		854	759	161	920
III	AIE					
	i. Bridge Course					
	a. No. of centres					352
	b. No. of children enrolled (+)			2788	4538	326
	ii. Transit camps					
	a. No. of camps					75
	b. No. of children enrolled (+)			535	887	422
	c. No. of children under home based training, i.e IED (+)				130	130
IV	i. Residential camps					
	a. No. of camps					1
	b. No. of children enrolled (+)		51		50	50
V	Open School (overage) (-)					3113
VI	ESLC (overage) (-)					392
VII	Migrants (+)		1037			1037

REFERENCES

1. Best John. W. and Khan James. H. (1999), Research in Education, N Delhi: Prentice-Hall of India.
2. Education For All – Erode District 2000 – Perspective Plan for 2001 010.
3. Education For All: Erode District 2003 – EGS & AIE Monthly Report O & Nov. 2003.
4. Government of India, MHRD, 2001 – Handbook for Education Guarante cheme and Alternative and Innovative Education.
5. Government of India, MHRD, 2001: SSA – A Programme for Universal E entary Education: Framework for Implementation.
6. Government of India, MHRD, Department of Education 1992: Progran e of Action, 1992.
7. Government of India, MHRD, Deptt. of Education (2001), Every Child School and Every Child Learning: Diversified Strategies for Universalizing Ac ss to Schooling.
8. Government of India: CENSUS 2001: Handbook.
9. Government of India: Training Programme – 2001: Perspective Plannin or UEE: Mussorrie, NSDART.
10. Government of Tamilnadu – DEEP - EFA 2003: Project Activities Gu line Handbook.
11. Govt. of India, MHRD, Deptt. of Edn. 1992: National Policy on Educat (1986).
12. Jessop.T., (1998), Case study research : A Model of Best Practice at to Day School, Sealdah, Calcutta : DFID (India), Education Sector Group.
13. National Council for Education Research and Training 2000: National riculum Framework for School Education, New Delhi.
14. Pradhan Nityananda (2001), Problems of Educating Children in Trib Communities: Case Study of a Village in Koraput District of Orissa, v Delhi: NCERT,
15. Sangai Sandhya, (2002), Streamlining Universalization of Elementary ucation.

ACTION RESEARCH APPROACH TOWARDS QUALITY EDUCATION

KRISHNA KUMARI

ABSTRACT

The teacher is the principal agent whose performance determines the quality of an educational programme when transacted in the classroom. It is therefore advocated that capacity building of teachers through action research oriented training programmes should be ensured to enable them to meaningfully solve the classroom problems faced by them. This paper describes five-step action research training programmes organized by the DPEP, Haryana, during 1999-2002 through which 80 teachers were trained and 75 action research studies in 15 areas of primary stage schooling completed. The paper provides a summary view of five such studies that can motivate other primary teachers elsewhere.

1.0 INTRODUCTION

The falling of standards in the quality of education at all levels is a matter of concern for all of us. The quality of education includes the quality of curriculum, the functional competencies of teachers, the learning resources, the organizational set up, the teaching-learning environment, and the proper assessment, appraisal and monitoring of classroom processes and practices.

The teacher is the principal agent for implementing educational programmes and [illegible] of education. The responsibility of a teacher is not confined to mere transaction of knowledge and transaction of curriculum. He/she plays a vital role in the development of attitudes, beliefs and values among the students. Therefore, the teacher has to discharge different functions: as a guide, a manager, an administrator, and so on. For quality control, quality assurance and quality maintenance, the teacher has to face a number of problems in the areas of discipline, management, content in different subjects, the learning problems of students etc. The teacher at all stages is supposed to undertake and promote research, experimentation and innovation in order to improve the quality of instruction in the classroom. Before presenting the research findings related to a programme undertaken on Action Research in Haryana, let me briefly explain the salient features of Action Research which would help to focus our attention on the theme of the seminar.

2.0 CONCEPTUAL FRAMEWORK OF ACTION RESEARCH

The concept of action research has been used in education since 1926. Backingham used this concept for the first time in his book "Research for Teachers." However, action research was applied for the first time for solving problems in the field of education by Stephen M. Corey.

- According to Stephen M. Corey, "Action Research is a process for studying problems by practitioners scientifically to take decision for improving their current practices." In other words, it can be said that it is the process by which practitioners attempt to study their problems scientifically in order to guide, correct and evaluate their decision and action.

- According to Sara Blackwell, "The research concerned with school problems carried on by school personnel to improve school practices is action research".
- Lehman and Mehrens point out that "Action Research is a type of applied decision-oriented research, but with the stipulation that the researcher is the same person as the practitioner who will make and live with the decision."

Thus, action research is focused on the immediate application, and not on the development, of a theory or in general application. It places emphasis on a problem here and now in a local setting. Its findings are to be evaluated in terms of local applicability, not universal validity. Its purpose is to improve school practices and, at the same time, to improve those who try to improve the practices, to combine the research process, habits of thinking, the ability to work harmoniously with others and professional spirit.

On the basis of these definitions and explanations, it may be concluded that action research has the following four characteristics:

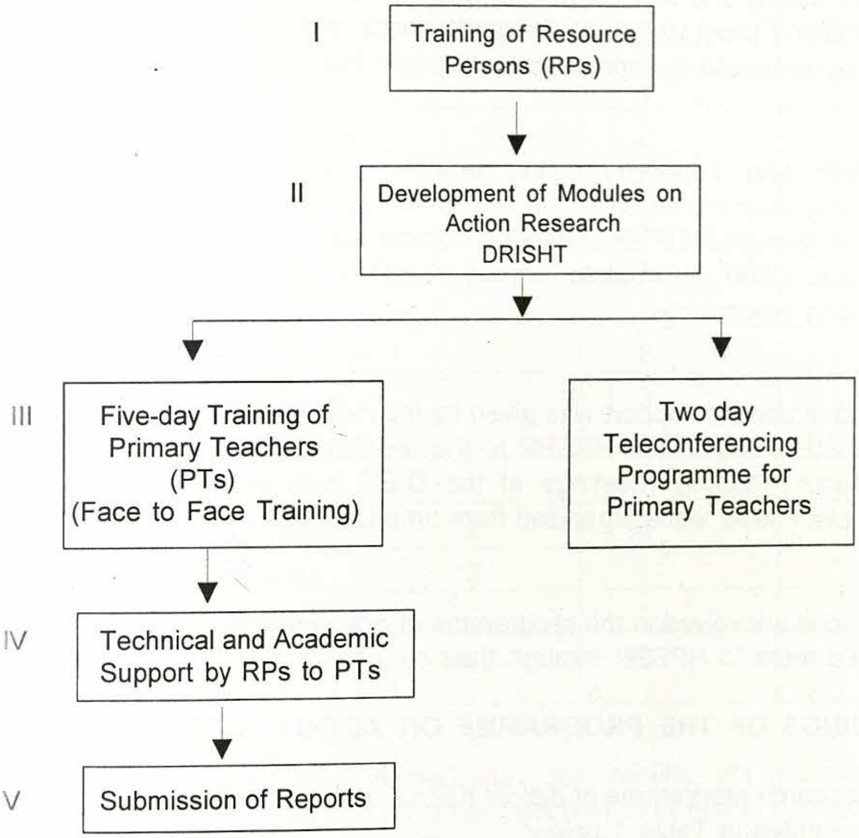
1. Action research is a process for studying practical problems of education.
2. It is a scientific procedure for finding out practical solutions of current problems
3. It is conducted by the practitioners (teachers, supervisors and school administrators dealing with educational problems).
4. Its focus is on improving and modifying the current practices.

3.0 ACTION RESEARCH IN HARYANA

Significant efforts have been made by DPEP, Haryana for improving school efficiency and teacher effectiveness. For capacity building of teachers a number of in-service teacher training programmes like seminars, workshops and orientation programmes have been organized from time to time.

To motivate and involve practising teachers in problem solving activities and processes of innovation, DPEP Haryana has conducted a series of teacher training programmes on 'Action Research' through its SCERT. The strategy adopted by DPEP Haryana for the promotion of Action Research is depicted in the flow chart given below (See Fig. 1)

Flow Chart


I
Training of Resource Persons (RPs)
II
Development of Modules on Action Research DRISHT
III
Five-day Training of Primary Teachers (PTs) (Face to Face Training)
Two day Teleconferencing Programme for Primary Teachers
IV
Technical and Academic Support by RPs to PTs
V
Submission of Reports

Step 1:
A five-day training programme for resource persons was organised from 8th to 12th March 1999, at the State Institute of Educational Management and Training (SIEMAT), Allahabad. Twenty teacher educators (lecturers) from various District Institutes of Education and Training (DIETs) and SIEMAT of Haryana participated in this programme.

Step II:
A training module on Action Research called 'Drishti' was developed by the DPEP, Haryana. This module is a complete package that covers various aspects of action research.

Step III (a):
A five-day teacher training programme on Action Research was organised under the DPEP at SCERT, Haryana, Gurgaon. This teacher training programme was conducted in 1999, 2000 and 2001. Twenty primary teachers from each of the seven DPEP districts (viz. Kaithal, Sirsa, Hisar, Jind, Bhiwani, Gurgaon and Mohindergarh) were given training every year. The following topics were discussed with the target group:

i. The concept of research
ii. Types of educational research – fundamental, applied and action research
iii. Characteristics of action research

iv. Steps in action research
v. Tools and Techniques
vi. Report writing and presentation of action research

During this training programme, all the participants selected their problems for action research. They prepared synopses and presented them in the group.

Step III (b):

To strengthen and supplement the teacher training programme, a two day teleconferencing programme on action research was organised by the DPEP, Haryana in collaboration with DEP-DPEP and Indira Gandhi National Open University, New Delhi on August 3-4, 2000. A module named 'CHETNA' was also developed for this teleconferencing programme.

Step IV:

Technical and academic support was given by the resource persons from the DIET, the SCERT, the SIEMAT and the HPSPP to the teachers involved in the programme of Action Research. Monthly meetings at the DIET level and *Nukkar* (street corner) meetings at block level were organized from time to time for monitoring and feedback.

Step V:

Individual teachers involved in the programme of action research prepared their reports and submitted them to HPSPP through their concerned DIETs.

4.0 FINDINGS OF THE PROGRAMME ON ACTION RESEARCH

The action research programme of district Kaithal undertaken during the following years has been presented in Table 1 below.

Table 1: Teachers Training Programme in District Kaithal

Year	No. of Teachers Trained	No. of Action Research Studies Completed
1999-2000	20	20
2000-2001	40	36
2001-2002	20	19

Out of the eighty teachers trained under the Action Research Programme, 75 teachers could complete their studies successfully. Five teachers could not complete their Action Research due to the reasons like transfer and promotion. The teachers involved in this research programme selected their research problems from the following areas: enrolment, retention, dropout, multi-grade teaching, discipline, achievement level in various school subjects, VEC, TLM, text books, etc. (See Table 2).

S. No.	Area	1999-2000	2000-01	2001-02
1	Language	8	8	5
2	Maths	1	5	6
3	EVS	-	1	2
4	Enrolment	1	2	2
5	TLM	1	2	-
6	MGT	1	2	1
7	VEC	1	1	-
8	Library	-	2	-
9	Text books	1	2	-
10	Discipline	-	3	1
11	Home Work	1	-	-
12	ETT	-	2	-
13	Attendance	2	4	2
14	Hygiene	2	1	-
15	Dropout	1	1	-
Total		**20**	**36**	**19**

Even though all the studies have yielded significant results, yet the results of five research studies have been selected for presentation in the present context in order to highlight the effectiveness of the Action Research Programme (ARP).

Action Research- 1

Name and Address of Researcher	Satish Kumar J.B.T. Govt. Primary School, Bhuna Plot No. 1, Guhla, Distt. Kaithal
Problem	Multigrade teaching, No. of classes -5, No. of Teachers - 2, Generally, one teacher is required for one class. It is indeed a challenge before a teacher if he has to teach 2 or 3 or more classes.
Need	Action Research was needed to manage the three classes properly- for providing direct teaching to all the classes;- for making proportionate time available to all the subjects; and- for maintaining quality in terms of students' achievement.

Action Steps

- A survey of 6-11 age group children w conducted and it was found that 92 su children were out of school.
- The school and the classroom environment was made attractive and sufficient facilities were provided in the school.
- Study material was provided to poor students.
- Special attention was paid to the colon from where students were least enrolle and in which parents were very carele about the education of their wards.
- Personal contact was made with the parents and cooperation from the VEC the Panchayat, Aanganwari workers ar social workers was procured.

Results/Effects

- It developed among students leadership qualities and interest in group work.
- It created better teaching learning environment in the school, discipline properly maintained.
- The researcher was able to manage the three classes properly.
- All the classes and subjects were giv proper attention.
- There was increase in the achieveme level of the students.
- Confidence of the community was developed and this resulted in higher enrolment of students.

Remarks

- The problem of multigrade teaching is a common problem in a number of schools. Action Research can help the teacher cope up with this type of situation effectively.

Action Research – 2

Name and Address of Researcher

Sanjay Kumar
J.B.T.
Govt. Primary School
RajoundKaithal

Problem

Decreasing enrolment in standard - 1

Need

- Enrolment of students in standard 1 is decreasing every year. The number of students in that school has decreased by 1/3 approximately. Proportionately the number of sanctioned posts of teachers in that school has also been reduced from 15 to 10.
- Enrolment of students in standard 1 is basic for the proper strength of students in the school. So it is necessary to make efforts for higher enrolment in standard 1.

Action Steps

- A survey of 6-11 age group children was conducted and it was found that 92 such children were out of school.
- The school and classroom environment was made attractive and sufficient facilities were provided in the school.
- Study material was provided to poor students.
- Special attention was given to the colony from where students were least enrolled and in which parents were very careless about the education of their wards.
- Personal contact was made with the parents and cooperation from the VEC, the Panchayat, and Aanganwari workers and social workers was procured.

Effects

- Parents became aware about the importance of education. They became more conscious about the education of their wards.
- 58 additional students were enrolled in standard-1 during the period of the Action Research.

Remarks

- This type of Action Research is necessary because enrolment is decreasing in government schools.
- Greater consciousness needs to be created among teachers, parents and the community regarding optimal enrolment.
- Proper facilities need to be provided to the students.
- Due to greater awareness created due to the action research students who had dropped out earlier were readmitted in the school.

- For quality improvement there is a need to improve the school environment, teacher behaviour etc.

Action Research – 3

Name and Address of Researcher

Raksha Ram
CRC
Cluster Resource Centre, Kakheri.

Problem

Increasing dropout rate in government schools.

Need

- Universal retention is necessary in order to achieve the target of the universalization of elementary education.
- The number of dropout students was increasing in cluster Kakheri.

Action Steps

- Reasons for dropout were found. Efforts were made to overcome these factors.
- A list of the dropout students of last year was prepared and the parents of the students were contacted.
- The environment of all the schools under this cluster was made attractive and non-threatening.
- Teachers were requested to pay individual attention to the students, understand their problems and cooperate with them.
- Teachers were asked to teach with the help of activities and teaching learning materials.
- Parents were informed about the performance of their wards and they were made conscious about the education of their children.
- Cooperation from the village education committee was procured.

Effects

- The number of dropouts in 1997-98 was 102, in 1998-99 it was 163 whereas with the help of action steps, there was no case of dropout in the current year. Teachers, parents, students and VEC members became conscious that all the children must complete primary education.

Remarks

- Enrolment as well as retention is compulsory for the universalization of elementary education.
- Other CRCs were motivated to check dropouts in their clusters.

Action Research – 4

Name and Address of Researcher

Nizamdin
J.B.T.
Govt. Primary School
Cheeka, Kaithal.

Problem

Poor recognition of numbers in mathematics by students of standard II.

Need

- Mathematics is an important subject. Every one must learn the basic skills of mathematics. As per the curriculum, students of standard II should know addition, subtraction, multiplication and division. Identification of numbers is basic to these operations. The researcher observed that most of the students of standard II were not able to recognize numbers correctly. Without this it is very difficult to cover the syllabus.
- The present action research was conducted with the objectives of:
  (a) developing students' interest in mathematics;
  (b) reducing students' fear of mathematics; and
  (c) increasing the achievement level of students in maths.

Action Steps

- Identification of students having the problem of number recognition. Out of 57 students of standard II, 15 were below average in recognizing the numbers in the pre-test.
- Individual attention and special time was given to these students.
- Parents were informed and requested to extend their cooperation.
- Teaching-learning materials, e.g., real objects, cards were used.
- Maths was taught with the help of playway activities.

- Students were given opportunities to express themselves.
- Practice exercises were given in groups.
- Students were encouraged and prompted, whenever necessary.

Effects

- In the pre-test, 15 students were below average. In the post-test only one student was below average.
- Students' interest in maths and their confidence increased.

Remarks

- Mathematics is a very useful subject in practical life. But most of the students have mathematics phobia. The use of playway activities, proper teaching learning materials and individual attention can make learning of mathematics quite interesting and easy.

Action Research – 5

Name and Address of Researcher

Rajbir Singh
JBT
Teacher Govt. Primary School,[illegible] Kaithal

Problem

Spelling mistakes in Hindi.

Need

- Writing with correct spelling is [illegible] indicator of the quality of language learning. Spelling mistakes not only affect the attainment level of the students but also convey wrong meanings in some situations. The researcher observed that students of standard V were deficient in spelling. They were hardly aware of the correct sequence of letters and spellings.
- This Action Research was needed to increase the achievement level of students.

Action Steps

- Students and parents were made conscious of the advantages of correct spelling.
- Basic knowledge of alphabet (वर्णमाला)- vowels (स्वर), and consonants (व्यंजन) was provided to students.

- The correlation between sound (ध्वनि) and script (लिपि) was strengthened for all students.
- The teacher improved his pronunciation so that the students may write the correct spelling of words.
- Teaching learning materials, e.g., flash cards and activities were used to help students correct their spellings.
- Regular dictation and correction were provided to the students.

Effects

- The pre-test revealed that out of the total of 40 students, 30 students were having spelling deficiency. In the post-test, only 10 students were below average so far as their spelling ability was concerned.
- Students became conscious about their spelling mistakes and tried to avoid spelling errors.

Remarks

- Diagnosis of hard spots and remedial teaching enhance the quality of education.

4.0 CONCLUSION

On the basis of the feedback received from the participants and the abstracts of these studies, [illegible] concluded that action research is an effective tool for enhancing the quality of teaching. The findings of Action Research the following notions:

- Through action research, the achievement level of the students can be raised in different subjects.
- Action Research increases enrolment and retention in schools.
- Action Research not only supports teachers but also parents, community and administration.
- Multigrade teaching is a common problem in primary schools. Action Research has helped teachers to cope up with this problem.
- Action Research helps teachers identify day-to-day problems. Teachers became more sensitive and responsive to the problems of their students and encouraged them to find solutions for them.
- It develops teachers' insight into the reasons for the problems they encounter.
- It develops rational, imaginative, creative and objective thinking in teachers to help them identify the factors responsible for the problem.
- It develops positive and supportive attitude towards research. Action research studies revealed that teachers discussed their problems with their colleagues and experts in the field, to attain better quality and excellence in their teaching.
- It makes teachers self-reliant and confident in developing new models of problem solving.
- It develops professional resources with minimum costs to enable teachers to solve problems at their own level.

REFERENCES

1. Aruchami, M. (2004), 'Quality Imperatives in Higher Education', *University News*, 42(05). New Delhi: Association of Indian Universities.
2. Best J.W. (1986), Research in Education New Delhi. Prentic-Hall of India
3. 'CHETNA' (2000), Module for Teleconferencing on Action Research, Chandigarh, Haryana Prathmik Shiksha Pariyojna Parishad.
4. 'DRISHTI' (1999), Teacher Training Module for Teachers on Action Research, Chandigarh, Haryana Prathmik Shiksha Pariyojna Parishad.
5. Halim, Md. Abdul. (2004), 'Quality Issues in the Higher Education Institutions in Bangladesh'. *University News* 42 (02). New Delhi: Association of Indian Universities.
6. Rajbir. (2001), *Action Research.* Palwal (KKR): District Institute of Education and Training.
7. Raksha Ram, Nizamdin and Sanjay Kumar: Action Research Report, Palwal (KKR), DIET.
8. Satish, Kumar. (2001), *Action Research.* Palwal (KKR): District Institute of Education and Training.

22

A STUDY OF A PRE-PRIMARY SCHOOL AND ITS IMPACT ON PRIMARY EDUCATION IN ACHIEVING THE OBJECTIVES OF SSA

M. MATHIAZHAGAN & R. ANBAZHAGAN

ABSTRACT

The National Policy on Education (1986, revised in 1992) conceptualized pre-primary schools under Early Childhood Care and Education (ECCE) as a feeder as well as a support input to strengthen primary education. This case study of a pre-primary school in Kurinjipadi block of Cuddalore, Tamilnadu aimed at investigating facilities, resources and programmes of the school and assessing its contribution to greater effectiveness of primary education. The investigators used on-site visits to the school and a structural interview schedule to collect data from respondents. They further focussed on the support inputs provided to the school by various agencies, including the World Bank and the state government through their programmes. The study highlights the silent manner in which the school provides invaluable developmental inputs to young children and uses its facilities and resources for running a rich activity-based educational programme. The investigators conclude by stressing that the school can perform better provided if its infrastructure facilities are improved and academic support is provided by experts through in-service teacher education programmes.

1.0 INTRODUCTION

Pre-primary education, a component of Early Childhood Care and Education (ECCE), was started as an important input to the strategy for human resource development and also as a feeder and support programme for primary education. It was also meant to provide a support service to children from the disadvantaged sections of society including our rural society. While there are numerous pre-school education institutions including preparatory schools in major towns and metros, pre-primary schools are an exception in most village-based, i.e., rural societies. In Kurinjipadi block of Annanagar in Cuddalore district, a pre-primary school has been serving children from the local community. The investigator felt that the time was ripe to conduct a study of a pre-primary school in this block to assess whether it was contributing in some appreciable measure to the effectiveness of primary education in Kurinjipadi block. Hence this study.

2.0 OBJECTIVES

The broad objectives of this study were as given below:

- To study the various types of activities organized in the pre-primary school during the session.
- To examine its structure, needs and the support it receives from outside.
- To investigate its facilities and the skills that it develops among students through them.
- To assess its contribution to effectiveness of primary education.

3.0 BACKGROUND TO THE SAMPLE SCHOOL

District Cuddalore has 14 blocks. Each block has a number of pre-primary sch . In all, this district has 918 pre-primary schools. Kurinjipadi is one of these 14 blo s. This study, which is in fact a case study, was conducted on one of the randomly lected pre-primary schools of Kurinjipadi, Annanagar. This small town is a major P chayat area and has a population of about 7000. The sample school has 35 stude s aged between 36 months and 60 months on its rolls.

4.0 DESIGN OF THE STUDY

This study was based on the case study method. The investigators visited th school for a week and observed its programmes and facilities. They interacted ith the teachers as well as the parents through a face-to-face interview. They elicited n cessary information from Child Welfare Organizers (CWOs), the Child Nutrition Worke (CNW), the Village Health Nurse (VHN), the supervisors, the village President, and the He dmaster and selected teachers of the primary school located on the same campus.

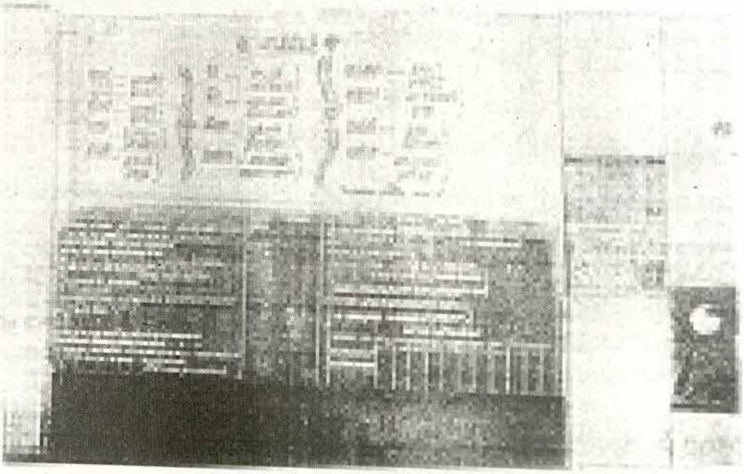
School:

The school is run by the well trained Child Welfare Organizer (CWO), ably sisted by a Community Nutrition Worker (CNW), a Village Health Nurse (VHN) and lady assistant (ayah). The financial support for the school is provided by the Wo Bank and the Government of Tamilnadu. The school is run under a scheme calle Vold Bank Integrated Child Development Scheme (WBICDS). It is simultaneously supported by Tamilnadu Integrated Nutrition Programme (TINP).

Activities:

The school functions between 10.00 a.m. and 4.00 p.m. with a brief lunch b ak. The children are trained for development of various skills. The school provide various activities through its well-planned weekly and monthly time tables. Specimen samples (one each) are given here.

Monthly Lesson Plan



Weekly T Table of the Sampled School

Timings	Monday	Tuesday	Wednesday	Thursday	Friday
10.00 to 1	Free conversation	Free conversation	Free conversation	Free conversation	Free conversation
10.20 to 1	Creative activities	Creative activities	Creative activities	Programmes games	Creative activities
10.40 to 1	Language development	Number practice	Language development	Number practice	Language development
11.00 to 1	BREAK	BREAK	BREAK	BREAK	BREAK
11.10 to 11	Psychomotor experiences	Science experience		Science experience	Psychomotor experiences
11.30 to 11	Activity songs	Story	Activity Songs	Story	Activity songs
11.45 to 12	Life oriented activities	Dramatization	Life oriented activities	Puppet show	Programmes games
12.00 to 2	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
2.00 to 2.	Story	Creative activities	Programmed games	Life oriented activities	Nature's understanding
2.30 to 3.	Dramatization	Language practice	Number practice	Language practice	Number practice
3.00 to 3.	Science experiences	Psychomotor experiences	Puppter show	Activity songs	Free games
3.30 to 4.	Sand games	Water games	Clay Games	Free games	Programmed games

These activities are organized under seven heads and through its five-day (Monday through Friday) programme the school provides as many as 754 activities to its students (Table 1).

Table 1:

Sl. No.	Types of Activities	Total number of Activities
1.	Physical development activities	410
2.	Programmed playway method	54
3.	Science related activities	43
4.	Psychomotor activities	153
5.	Life-oriented Activities	22
6.	Language development activities	57
7.	Numeracy-based (Counting) activities.	54

It can be easily seen that these activities are predominantly based on the stage of the development of the children. During this stage, physical movements and neuromuscular coordinating activities have to be learnt by all children. These physical and psychomotor activities are aimed at developing both gross movements and later on somewhat discriminatory movements among children. Besides physical development, some basic activities in other areas lay the foundations for language, numeracy and other age specific cognitive activities. Thus, the activity based programme of the school is comprehensive and it also caters to the wholesome development of the child's body and mind. Towards the second term, the children take part in songs, both solo and group, free-talk, dramatisation, story telling and sponteneous play. A few field trips are also organised to expose children to the out-of-school world of reality.

During the interviews with the Headmaster and teachers, it was emphasized by the respondents that pre-primary education is both a feeder and a support to primary education. Therefore, the school lays stress on the development of skills among its students that can serve them well when they move on to the primary school. The school programme, the respondents stressed, grooms the students for joining the primary school and through the various skills supported by its activity programme, the students profit considerably better from the primary school programme. In a way, our activities provide a sort of 'head start' to these students. Besides, the pre-school programme focuses on the development of positive attitudes to long term schooling which in turn supports enrolment, retention and achievement. Skills of recognition, recall, differentiation (including pre-number concepts), social interactions, getting along with others in group situations, development of toilet habits and partial independence in dressing up, basics of hygiene and healthy living, cleanliness and ensuring litter-free environment etc., are stressed by the school and learnt early by the students.

Mid-day Meal

Lunch is served at about 12.00 noon. The following is the menu for the children's lunch. On alternate days, boiled green gram, chick pee etc. along with rice are served to them.

Rice	-	80 gm
Dal	-	10 gm
Oil	-	2 gm
Salt	-	1 ½ gm
Drumstick powder	-	2 gm
Vegetables	-	50 gm

Lunch is always served in a group and after lunch, the children pick up their utensils and put these at the proper place. They wash their hands before as well as after each meal.

Administration:

Pre-primary education is controlled and administered by the Directorate, the Department of Education and Health, and the Social Welfare Department of the state government. Pre-primary education is supported by a World Bank Integrated Child Development

Scheme (WBICDS). It is also assisted by Tamilnadu Integrated Nutrition Programme (TIN

The following is the administrative structure and support system of pre-primary education in Tamilnadu and it applies to the sampled school as well.

DPN - District Project Nutrition Officer
↓
DSW - District Social Welfare Officer
↓
SI - Statistical Investigator
↓
ASI - Assistant Statistical Investigator
↓
OA - Office Assistant
↓
CNI - Community Nutrition Instructor
↓
CNS - Community Nutrition Supervisor
↓
CW - Child Welfare Organizer
↓
CNW - Community Nutrition Worker
↓
CHN - Community Health Nurse

Now and then, the school is visited by doctors from the local Primary Health Centre. Sometimes district administrators like the collector and the teshildar also visit and inspect the school.

Community Participation

The President of the village and the local councillors contribute money and materials for proper functioning of the school. Often a Village Level Monitoring Committee (VLMC) meeting is conducted in the school premises. The President, the Child Welfare Organizer, the Village Health Nurse, the local Postman, eminent public people, school teachers, functionaries of the NGOs working in the pre-school education sector, members of the Women's Union and parents participate in these meetings.

Pre-Primary Education and SSA

Pre-primary education has now emerged as a huge support input to SSA. In fact, the aims and objectives of ECCE, pre-primary education and ICDS converge and overlap. Therefore SSA has also to provide support and learning resource material to the sampled school. Films, audio and video cassettes and in-service teacher training are the major support inputs received by this school from SSA.

The following are the various trainings conducted by DTERT, DIET and DPEP in Cuddalore District for the developmnet of Pre-primary education and the teachers of this school have participated in and benefitted from these programmes:

1. ECE – Preparation of syllabus for pre-school education workshop
2. ECE – Review and finalization of syllabi for Pre-School Education
3. ECE – Co-operation group meeting
4. ECE – Preparation of teaching aids for child care center – Workshops I & II
5. ECE – Orientation training to CDPOs and CNIs – Phases I & II
6. ECE – Appraisal programmes to media persons – Phases I & II
7. ECE – Refresher training to BRC Supervisor Teacher Educators – Phases I & II
8. ECE – Training programmes to BRC Supervisors for generating awareness among NGOs, VECs and mothers in ECE – Phases I & II
9. ECE –Evaluation Study
10. ECE –Evaluation Study – Preparation of questionnaire
11. ECE –Evaluation Study – Orientation to Investigators
12. ECE – Evaluation Field Study by Field Investigators
13. ECE – Evaluation Study – Analysis of DATA
14. ECE – Evaluation Study – Report Writing

Even though various support inputs have been provided to the school for its programme, yet teachers feel that some additional inputs are needed for the school to help it further improve its programme. These are as follows:

- The school should have an exclusive play ground for its students.
- The school building needs to be provided with electricity connection. Without it the students cannot benefit from learning resources that depend upon the availability of electric supply.
- Awareness programmes for parents need to be organized. These can sensitize parents about the importance of pre-primary education and its benefits for their wards.
- There should be two servants/maids (ayahs). One ayah finds it difficult to attend to all the children. This has hampered the enrolment of more students in the school.
- Most parents are economically poor. They find it difficult to provide uniform to their children. Therefore, provision for free uniform for the children needs to be made at the earliest.
- The school does not have any children's toilet. They ease themselves in the open field or by the roadside which goes against what the school stresses through its programme.
- After completing their pre-primary education the students should be given a proper certificate that they have attended the pre-primary school and completed its programmes.

Conclusion:

Way back in 1986, pre-primary education was conceptualized as a support input to strengthen primary education. This case study reveals that pre-primary schools are fulfilli their mandate to a considerable extent. However, they can perform still better if they provided all necessary help by the state governments and other voluntary agen s. Since pre-primary schools are the first-rung component of a large system that inter with the local, especially rural community, it is necessary that their facilities, reso s and programmes become optimally effective thereby strengthening primary educ n and SSA through their contribution at the grass root level.

23

IMPROVING THE LEARNING SKILLS OF HEARING IMPAIRED CHILDREN IN A REGULAR CLASSROOM THROUGH PLAYWAY ACTIVITIES

VANITHA DANIEL

ABSTRACT

Special education is instruction designed for students with disabilities who experience difficulties in learning in regular classrooms. This specifically designed instruction requires special materials, special teaching techniques or equipment and facilities. Today special education programme for special children is very much an integral part of general education. Hearing impairment is one of the specific handicaps found in children. This research paper discusses the learning variation between hearing impaired children and normal children in a regular classroom. The investigator used playway activities. The investigator doubts whether general teachers are properly trained and motivated to meet the special needs of deaf children. One wonders how far the hearing impaired children are benefited by integrating them with normal children in a regular school. The sample included five children with hearing impairment. Playway activities were used for instructional purposes. Nearly ten activities were used with both hearing impaired children and normal children. Learner performance was measured and differences between normal children and hearing impaired children were compared. All the children enjoyed themselves and participated actively in the playway activities.

1.0 INTRODUCTION

All disabled children are special children with special needs. Hearing impairment is one of the specific handicaps found in some children. Hearing influences learning and some other aspects of maturation. If a child's hearing is less than perfect, there is every possibility that his speech will also be adversely affected.

Special education is instruction designed for students with disabilities who experience difficulties in learning when put in regular classrooms. Special education implies specifically designed instructional material and teaching techniques that meet the special learning needs of these children. It requires special materials, teaching techniques, equipment and facilities. Special education may be imparted in regular classrooms, in special classrooms or in a combination of both. Earlier it was primarily confined to special classes. But now a special education programme for special children is very often an integral part of general education.

Special education is changing. More and more children with disabilities are now taught and expected to learn the same content as their normal peers in the same class. This research paper discusses learning variation between hearing impaired children and normal children in a regular classroom through playway activities.

2.0 DEFINITION OF KEY TERMS

Hearing impairment professionals with an educational orientation normally categorize hearing impairment in terms of the extent to which the hearing loss affects the ability to speak and understand the spoken language. The following are the key terms normally used in the context of hearing impairment:

Hard of hearing: Those who lose their hearing partially after they have acquired speech are known as being hard of hearing. Children who are hard of hearing have slight, marginal and moderate losses. They can therefore be educated through the auditory channel with the help of customized hearing devices.

Congenitally deaf: Those who are born deaf are known as congenitally deaf.

Adventitiously deaf: Those who are born with normal hearing, but later on lose their hearing totally are called adventitiously deaf.

Mild Decrease in Hearing/Auditory Sensitivity

According to the WHO, mild decrease in hearing/auditory sensitivity means, "a hearing threshold level of 26-40 decibels (ISO), or the ability to hear and repeat words spoken in a normal voice at a distance of one meter". Such a person usually has some difficulty with hearing but can hear other people speak at normal levels of conversation.

Moderate Decrease in Hearing/Auditory Sensitivity

According to the WHO, moderate decrease in hearing/auditory sensitivity can be defined as "a hearing threshold level of 41-60 decibels (ISO), or the ability to hear and repeat words using a raised voice at distance of one meter".

Severe Decrease in Hearing/Auditory Sensitivity

According to the WHO, this means "a hearing level of 61-80 decibels (ISO), or the ability to hear some words when shouted into the ear".

Profound Decrease in Hearing/Auditory Sensitivity

According to the WHO, profound decrease in hearing /auditory sensitivity means "a hearing threshold level of 81 decibels (ISO), or greater, or inability to understand even a shouted voice".

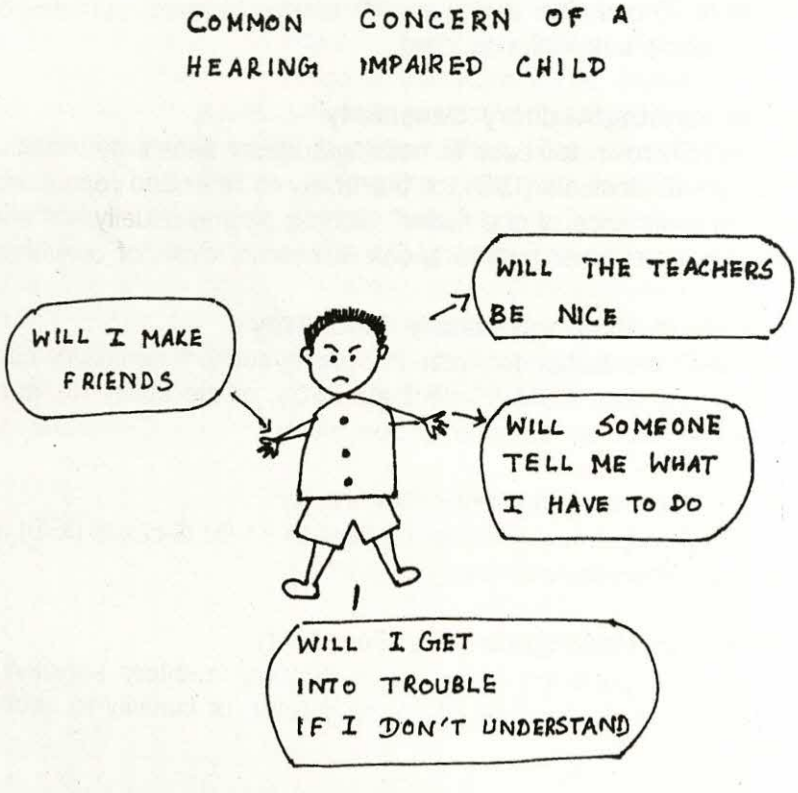
Hearing impairment causes problems in communication. A hearing impaired child needs to spend considerable time on learning speech and language.

3.0 NEED FOR THE STUDY

One way of assisting deaf children in their educational progress is through organizing special schools to meet their special needs. Teachers in these schools are specially trained to work with and teach children who can neither hear nor speak. In view of the large number of deaf population in India, the need to educate them even in small villages in rural schools has become a necessity. Thus integration of deaf children in regular schools is more a compulsion rather than an option. Integration of deaf children is seen as a process of mainstreaming where the special needs are expected to be met within the general school environment.

The issue today is, "Are we meeting the special needs of the deaf within a regular school environment?" "How far are the needs of the deaf taken into consideration in the designing of the mainstreaming plans?" Are the teachers of the deaf, especially the teachers in general schools, properly trained and motivated to meet the special needs of this group"? Or is there any variation between hearing impaired children and normal children in their learning capacity?"

In order to know the answers to these pertinent questions, the investigator decided to conduct a study in a regular classroom that had five students with hearing impairment.


COMMON CONCERN OF A HEARING IMPAIRED CHILD
WILL I MAKE FRIENDS
WILL THE TEACHERS BE NICE
WILL SOMEONE TELL ME WHAT I HAVE TO DO
WILL I GET INTO TROUBLE IF I DON'T UNDERSTAND

4.0 CHARACTERISTICS OF HEARING IMPAIRED CHILDREN

Hearing impaired children have certain distinct psychological and behavioral characteristics. Chief among these are the following:

- They are abnormally slow in their linguistic development. These children have a limited vocabulary; they lack comprehension of complex words and words and concepts with multiple meaning.
- Social and personality development depends heavily on communication. Hearing impaired individuals have personality and social characteristics that are different from those of the people with normal hearing ability. They grow up in relative isolation. They are often perceived as excessively shy.

- Partially deaf children experience more confrontation and personality problems than those experienced by totally deaf children;
- Hearing impaired children develop inferiority complex because of their inability to adapt to circumstances that require verbal communication. They feel that they are different and non-normal in some way from the normal children. This feeling hampers their growth and development of personality.
- They often become irritated when they find it very difficult to make themselves understood.

5.0 OBJECTIVES

The following were the objectives of the study:

- To help the hearing impaired children develop the skills they need to function in society.
- To develop in them good all round communication abilities.
- To improve their skills of speaking, lip reading and sign language.
- To enable them to build relationships with their peer group.
- To teach them to take decisions like their peer group.
- To develop learning skills of hearing impaired children through playway activities.

6.0 SAMPLE AND INSTRUCTIONAL STRATEGY

The investigator wanted to study how far the children with impairment are benefited by integrating special children in a regular school, especially a school in a rural background. The investigator's adopted school, SVS Middle School, Erukatancherry, is located in a backward village. The investigator wanted to find out whether there is any difference in learning between normal children and children with hearing impairment.

The investigator selected 5 children with hearing impairment in standard II, out of a total of 30 children by purposive sampling.

Brief Case History of Sampled Children with Hearing Impairment

Sr. No.	Name	Sex	Age	Nature of Impairment
1.	Subasree	Female	8	Hearing impaired when aged 3 months, with slight mental retardation.
2.	K. Thavasuraja	Male	11	Hearing impaired
3.	K. Kumararaja	Male	9	Hearing impaired
4.	Sarumathi	Female	9	Hearing and speech impaired; has difficulty in communication; is able to write
5.	Santhana Priya	Female	10	Hearing impaired with stammering problem.

The investigator decided to use playway activities suitable for the sampled hearing impaired children.

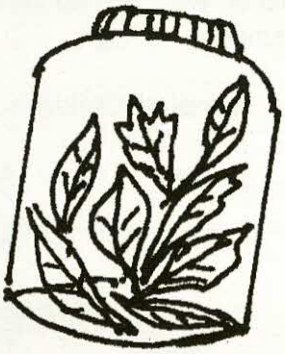
7.0 ACTION PLAN

- The investigator visited the SVS School and identified the hearing impaired children.
- The investigator conducted activities with the help of the class teacher for all the 30 children.
- The investigator compared the deaf children with the normal children of their class on some abilities and variables.
- The investigator recorded the findings whether these five deaf children were at a lower, equal or higher level than their peer group in performing the activities.
- The investigator gave special coaching to the deaf children in performing the activities in which they were at a lower level than their peer group.

Play is important for young learners to develop their language abilities and imaginative thinking. So the investigator conducted the following activities with both normal and hearing impaired children in the regular classroom.

Activity 1: Counting the Leaves

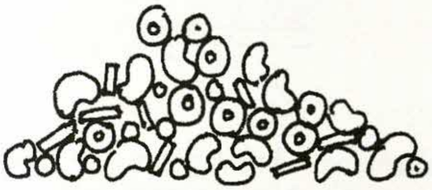
This activity helps children improve their eye contact. It is a pre-verbal skill. The investigator put 10 leaves in a see-through container. The children in the class were asked to guess the number of leaves in the container. Then the children were asked to count the number of leaves inside the container by taking them out one by one.



All the children started counting the leaves and finished the task within five minutes. The hearing impaired children also finished counting almost within five minutes like their peer group. They were thus at par with their peers so far as this activity is concerned.

Activity 2: orting Out

The investi or placed a pile of stones, pebbles, small seeds, sticks and buttons. The children we asked to sort them into different groups.



The normal children started sorting out immediately and finished the task within 2 minutes. By eading the lip movement of the investigator, the hearing impaired children also finished sorting out of the material in 2 minutes. Both groups of children were thus at par with ch other.

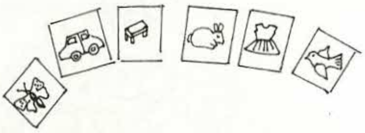
Activity 3: oll Activity

The invest or showed a mechanical doll to the children. The mechanical doll looked almost like eal baby. The children were asked whether it was a living one or a non-living one. e investigator questioned them whether the doll could breathe, eat etc.

The children answered immediately that the doll was able to walk and make sounds like real babies. The investigator asked the children to put one finger in front of their nose and feel their breath. Then the investigator asked the children to put their finger in front of the doll's nose. The children agreed that there was no breathing. The investigator explained that only living things can breathe, eat, walk and do various activities. The investigator showed to the class that when the battery was taken out, the mechanical doll could not walk or make any sound. All the children learnt the differences between the living and the non-living. The instructor took the children outside the classroom and asked them to collect three non-living things. The hearing impaired and the other children were at par with one another in their answers.

Activity 4: Arranging the Pictures

The investigator took out a pile of pictures of animals, furniture, vehicles and clothes. She asked the children to arrange the pictures in a circle so that no two adjacent pictures were from the same category. The children were told they could move the pictures if they wished.

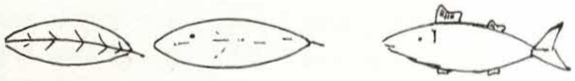


By observing the peer group the hearing impaired children arranged the pictures. They took more time than the normal children, especially the one with slight mental retardation who took a long time in arranging the pictures but was unable to complete the task successfully. The hearing impaired children were thus at a lower level than their other peers so far as this skill was concerned.

In order to improve their skill, the instructor asked the impaired children to paste the pictures 0n sheets named as animals, furniture, vehicles and clothes separately. After they had learnt that things differed because they belonged to different categories, the investigator asked the hearing impaired children to put the pictures of animals, furniture, vehicles and clothes in a circle so that all animals were at one place and so on. Now the children were able to complete the task quite quickly.

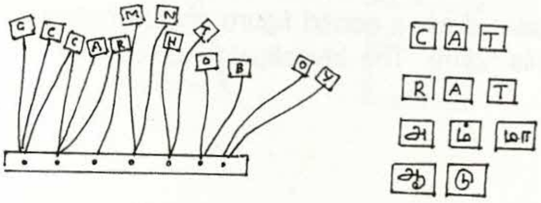
Activity 5: Creative Activity

The investigator asked the children to glue a leaf to a piece of paper. Then the children were asked to turn the leaf into a creature by adding features with a pencil or a sketch pen. This activity was meant to develop their creativity. Except the child with slight mental retardation, all hearing impaired children took more time in transforming the leaf into a creature. One hearing impaired child made a more beautiful creature with leaf than the other three did.



Activity 6: Making Words

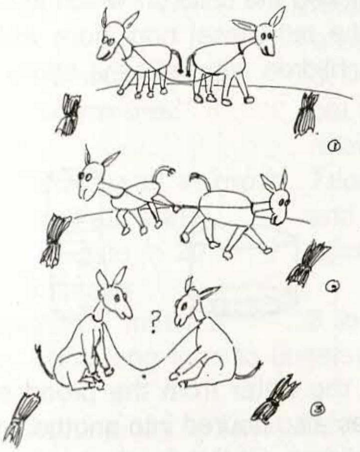
Many strings were attached to a board. At the end of each string, small cardboards with letters were attached. The children were asked to make as many words as they could do by pulling the strings with the letters for making words.



The hearing impaired children who did not know the letters were slow in their activity. Other normal children were able to make and write nearly 10 words within fifteen minutes. The four disabled children were slow, and two of them could make only six words in fifteen minutes. The mentally retarded deaf child was unable to make more than two words.

Activity 7: Problem Solving

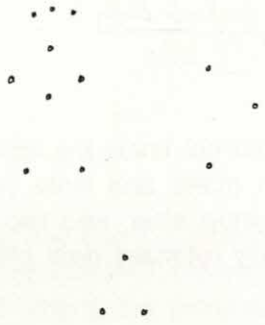
The investigator showed pictures of two donkeys, Pattu and Chittu, tied to the two ends of the same rope. Each donkey had a bundle of grass before him. Both want to get at their bundles. The rope is very short and permits them only a little movement at the same time. Now what should they do? The investigator asked the children to help the donkeys eat their grass. The children enjoyed the activity. The investigator noticed the hearing impaired children observing her instruction and then thinking out a solution.

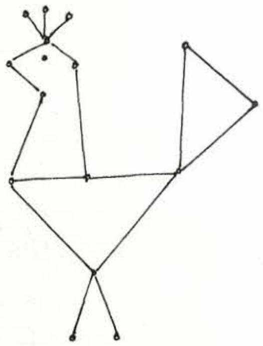


Of the five hearing impaired children, one child was able to give a solution. The normal children were discussing among themselves and finally a few were able to give a solution which was accepted by the rest of the class. The investigator noticed the active participation of the children, the normal children as well as the hearing impaired ones, in problem solving. Only the slightly mentally retarded hearing impaired child kept sitting aloof. She did not work with others or like others.

Activity 8: Completing the Figure

The investigator drew a dotted figure shown below on the blackboard. All the children could see this figure. The investigator asked them to complete the figure and give a name to it.

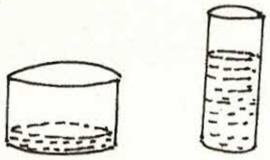


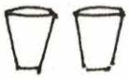


The normal children took two to five minutes to finish their drawing. The four hearing impaired ones also finished their drawing in three to five minutes. The deaf and slightly mentally retarded tried but could not complete the task.

Activity 9: Comparing the Water Level

The investigator showed two vessels to the children. One vessel was broad but shallow, the other one was tall but narrow. The investigator poured the same amount of water in both the vessels and asked the children which vessel had more water. Almost all the children answered that the tall vessel had more water. Not only the hearing impaired children but the normal children also had the same confusion.





The investigator poured the water from the broad container into a vessel. The water from the tall container was also poured into another vessel of the same size. All children including the disabled children did this for themselves and accepted that the broad and the tall vessels indeed contained the same amount of water. This activity took relatively longer time for the children to understand the concept.

Activity 10: Making a Stick House

The investigator asked the children to make houses with the help of sticks and paste it on a sheet of paper. The investigator taught them to differentiate between a hut, a terraced house etc.

The normal children took fifteen to twenty minutes to make and paste each type of house. By observing their peers, the hearing impaired children were also able to make houses and glued them on the sheet of paper. But they took more time to finish this task.

Comparing the Performance of Hearing Impaired Children and Normal Children

S. No.	**Activities**	**Normal Children**	**Hearing Impaired Children**
1.	Counting	Within 5 minutes	Almost equal time.
2.	Sorting out	2 minutes	Equal or slightly more time.
3.	Doll activity	Long time to understand the concept	Long time to understand the concept.
4.	Arranging the pictures	20 minutes	More time than their normal peers.
5.	Creative activity	30 minutes	More or less the same. One hearing impaired child made a beautiful leaf creature.
6.	Making words	10 words within 15 minutes	6 words within 15 minutes, but faster than the mentally retarded one.
7.	Problem solving	Discussed in group and gave the solution in 20 minutes	Tried to find the answer and one was able to give the answer.
8.	Completing the figure	2 to 5 minutes	3 to 5 minutes.
9.	Comparing water level	Took long time to understand the concept.	Took long time to understand the concept.
10.	Making houses with sticks	20 minutes	Took slightly more time.

8.0 FINDINGS OF THE STUDY

The investigator carried all the activities with both normal children and children with hearing impairment. The investigator observed that class teacher usually finds it very difficult to make her instruction suitable to both normal and impaired children. She often did not know how to engage the impaired children to promote their learning.

The teaching aids used by the class teacher were more useful for normal children than for hearing impaired children. The investigator felt that the teacher should give special attention to the impaired children while explaining the teaching aids. More visual aids such as charts, models, and real models, especially those suitable for the hearing impaired, should be used for instructional purposes.

The investigator noticed that normal as well as impaired children learnt everything happily through play-way activities in their common class. However, their learning capacity differed from one another's. At the same time, the hearing impaired children were as good in performing some activities as normal children. The hearing impaired children keenly observed the lip movement of the teacher. The investigator noted that the hearing impaired children tried to do various activities by themselves, may be because of their self-respect. They, however, took cues from their normal peers by reading their lip movement and activities.

Since this school is situated in a small village, the involvement of parents of these hearing impaired children is very low. Parents still have superstitions and myths about deafness. The hearing impaired child practically stays at home during the pre-school period mainly due to lack of parental awareness and poverty.

The classroom teacher is not trained in handling hearing impaired children. That is why she is unable to handle these students and often neglects them. Sometimes the children with hearing impairment find it very difficult to follow the directions of their teacher. So they tend to imitate the behaviour of their peers. Sometimes the investigator found that children with hearing impairment seemed to be inattentive and day-dreaming in the classroom.

9.0 SUGGESTIONS FOR GENERAL TEACHER FOR TEACHING HEARING IMPAIRED STUDENTS

Children with hearing impairment may require modifications of the physical, instructional and social environments to derive maximum benefits from general education.

- The hearing impaired children should be seated in front of the classroom and they may be allowed to change their places as activities change.
- The teacher should not move about much to allow hearing impaired children to see her face clearly to understand the directions given by her. She can structure classroom activities co-operatively, competitively or individually.
- Peer tutoring can he helpful to the hearing impaired children, but it should be organized under the supervision of the teacher.
- Some countries have developed finger spelling systems which make it easier for the hearing impaired child to understand what someone is saying. Gestures are also used. All these methods used together may lead to what may be called total communication. Only through proper training can teachers practise total communication in the regular class.

- Parents' olvement is very important so far as the education of the hearing impaired ldren is concerned. Cooperation from the parents will help the children overcom eir inferiority complex and helplessness.
- Teacher ho take classes for both normal and hearing impaired children in a regular c sroom should undergo training in how hearing impaired children can be taught e ively. Then only can the teachers handle hearing the impaired children effective nd do justice to them.
- Hearing s can be worn behind the ear, in the ear, on the body, or on eyeglass frames. nnological advances have made hearing aids smaller, lighter, customized and mo owerful. Awareness should be created among the parents of hearing impaired ildren and the public about the advantages of using proper hearing aids.
- One wa e hearing impaired children, especially the deaf, can communicate with other is translating verbal messages into written form. The simplest device for this, of c rse, is the use of pencil and paper. In future closed captioning on TV and telecomm nication devices that can allow deaf people to talk on the telephone are more so sticated methods. Similarly, learning how to work on the computer can help hea g impaired children overcome their problems of communication.
- In recen ears, many people with hearing or speech impairments, just like non-disabled ople, have begun to use computers with fax modems to send and receive fax mes es or electronic mail. These kinds of technology allow people with disabilit o communicate freely with the whole world.

Hence bot e hearing impaired persons and their educators must have proper exposure t vancements in technology.

24

DEEPOTSAV/PRAKASHOTSAV (FESTIVAL OF LIGHTS) – AN INNOVATIVE EXPERIMENT IN COMMUNITY-SCHOOL COOPERATION

दीपोत्सव/प्रकाशोत्सव - जनसहभागिता प्राप्त करने हेतु अनूठा प्रयास व नवाचार

विनोद कुमार गुप्ता

Vindo Kumar Gupta

ABSTRACT

Educational planners are of the firm view that village schools cannot work effectively unless they strike deep roots in local community and are patronized and supported by it. However, this is easier said than done. There aren't many success stories of Indian rural schools that developed and performed in an exemplary manner with the cooperation received from the local community. This paper describes an innovative experiment that was conducted in Kundam, a development block in district Jabalpur, under the Janshala Project. This development block with a little above 97% population of scheduled castes (10.34%), scheduled tribes (66-30%) and other backward sections (20.39%) offered a real challenge to teachers and teacher educators who were eager to involve the local community in making each school the venue of Deepavali or Deepotsav, one of the most important Hindu festivals. The paper describes how through meticulous planning involving the local community, the teachers achieved unexpected success, and created histroy in the process.

1.0 पृष्ठभूमि/समस्या का स्पष्टीकरण

मानव शिशु परिवार में जन्म लेता है। जन्म के पश्चात् शिशु अपनी आवश्यकताओं की पूर्ति के लिए परिवार व अन्य सदस्यों पर आश्रित रहता है। साथ ही परिवार के वातावरण से समायोजन स्थापित करने का प्रयत्न करता है। शिशु पारिवारिक परिस्थितियों के अनुरूप विश्वासों और परंपराओं का यथारूप ही अनुसरण करता है। इस प्रकार बालक की आदतों, रुचियों और मनोवृत्तियों का निर्माण सामाजिक वातावरण के आधार पर होता है। बालक में सहयोग की मनोवृत्ति का विकास समाज के संपर्क में आने से होता है। किंतु यदि दूसरों का संपर्क बालक को असंगठित तथा अव्यवस्थित रूप में प्राप्त होता है तो उसके व्यक्तित्व का विकास व्यवस्थित रूप से संभव नहीं हो सकता। इन सुसंगठित संपर्क की सरलता की प्राप्ति बालक को विद्यालय से होती है। विद्यालय में विभिन्न क्रियाओं से बालकों को तरह-तरह के अनुभव प्राप्त होते हैं, जिससे उसके व्यक्तित्व के निर्माण में महत्वपूर्ण योगदान प्राप्त होता है। वास्तव में विद्यालय के कार्यक्षेत्र में केवल अध्यापन ही नहीं, अपितु बालक के व्यक्तित्व का सर्वांगीण विकास भी आता है। विद्यालय का मुख्य दायित्व बालक की रुचियों पर ध्यान देते हुए विविध विषयों अथवा शास्त्रों के संबंध में बालक को ज्ञान अर्जित कराने के साथ-साथ बालक के शारीरिक, बौद्धिक तथा चारित्रिक विकास के सभी पहलुओं पर ध्यान देना है। इस संबंध में विद्यालय को अभिभावकों, संरक्षकों तथा माता-पिता आदि का सहयोग अपेक्षित होना स्वाभाविक ही है जिससे शिक्षकों को बालक के सर्वांगीण विकास के प्रयास में सफलता मिलेगी क्योंकि बालक का अधिकांश समय परिवार में अपने अभिभावकों के बीच गुजरता है। शिक्षक एवं अभिभावक दोनों बालक के विकास में तभी पूर्णता ला सकते हैं जब दोनों एक-दूसरे को अपेक्षित सहयोग

देते हुए समन्वित प्रयास करें। केवल पुस्तकीय ज्ञान के सहारे बालक का सर्वतोन्मुखी विकास नहीं हो सकता है। विद्यालय में अनकानेक पाठ्येत्तर क्रियाकलापों एवं प्रवृत्तियों का आयोजन शिक्षक द्वारा किया जाता है और अपेक्षा की जाती है कि बालक इन क्रियाओं में सहभागिता प्रदान करे। किंतु बालकों के अभिभावक प्रायः इन कार्यक्रमों के मूल्य को नहीं समझते तथा उनकी उपेक्षा करते हैं। उनकी मान्यता होती है कि अध्ययन कर परीक्षा पास करना ही आवश्यक है ना कि ये कार्यक्रम उनके विचार में ये कार्यक्रम बालक का समय नष्ट करते हैं। अतएव बाालक के मन में तीव्र मानसिक द्वंद्व उत्पन्न हो जाता है और उसके लिए निर्णय लेना कठिन होता है। इस प्रकार सर्वांगीण विकास में गतिरोध उत्पन्न हो जाता है। कभी-कभी शिक्षक भी अभिभावकों की परिस्थितियों एवं सीमाओं पर सहानुभूतिपूर्वक विचार नहीं करते और उनके प्रति अनुदारता का प्रदर्शन करते हैं जिससे अभिभावक शिक्षक के बीच पारस्परिक दूरियां बढ़ती जाती हैं। बालक की प्रतिदिन की सामान्य कठिनाइयों और समस्याओं के समाधान हेतु शिक्षक तथा अभिभावक में पारस्परिक सहयोग होना आवश्यक है। इस हेतु प्रत्येक विद्यालय में आपसी सहयोग को बढ़ावा देने के लिए ग्राम शिक्षा समिति/अभिभावक शिक्षक संघ स्थापित किए गए हैं। इस समिति एवं संघ के माध्यम से अभिभावकों तथा शिक्षकों के मध्य घनिष्ठ संपर्क स्थापित करके पारस्परिक सद्भावना एवं समझदारी का वातावरण उत्पन्न कर विद्यालय और समुदाय को एक-दूसरे के निकट लाने का प्रयास किया जा सकता है।

यथार्थ में विद्यालय तथा समुदाय के संबंधों में ऐसी स्थिति नहीं है। शिक्षक हहुधा अभिभावकों के प्रयोजनों के संहंध में शंका रखते हैं और दूसरी ओर अनेक अभिभावक विद्यालय को भय और चिंता के साथ देखते हैं जो उन्हें पूर्व अनुभव के आधार पर प्राप्त होते हैं। साथ ही अभिभावक विद्यालय की ओर सुरक्षात्मक प्रकार की भावना अपना लेते हैं। यह भावना इस कारण होती है कि अभिभावक अपने को शिक्षकों के सामने हीन समझने लगते हैं क्योंकि शिक्षक अधिक पढ़े-लिखे होते हैं और उनके बच्चों के भविष्य को बनाने और बिगाड़ने वाले होते हैं।

हमारे अधिकांश विद्यालयों की व्यवस्था ऐसी होती है जिसमें विद्यार्थियों के अभिभावकों को प्रवेश करने में हिचकिचाहट व घुटन का अनुभव होता है। अशिक्षित, अल्प आय वाले व प्रभावहीन अभिभावकों के साथ शिक्षकों का व्यवहार, कोमल व प्रोत्साहक नहीं होता है नौकरशाही की प्रवृत्तियाँ बलवती दिखती हैं। शिक्षकों का पक्ष है कि अभिभावक उनके साथ सहयोग नहीं करते हैं। विशेषकर ग्रामीण जनता की विद्यालयों के प्रति बेरुखी बहुचर्चित विषय बना हुआ है। समिति व संघ की बैठक में उपस्थिति न्यून बनी रहती है। इस संबंध में यह प्रश्न विचारणीय है कि क्या शिक्षक भी वास्तव में अभिभावकों से घनिष्ठ संपर्क करने के इच्छुक हैं।

'रोज रोज आवे नहीं शिक्षक जाए भूल
ऐसा ही चलता रहे गाँव का स्कूल
बस के टाइम से लगता रहे स्कूल
शिक्षक भी न पा सका गाँव का स्कूल'

कस्बाई व शहरी शिक्षकों जिनकी नियुक्ति ग्रामीण क्षेत्रों की शालाओं में होती है, कि रुचि अपने शहर या कस्बे में रहने की होती है। 'अप-डाउन' संस्कृति के कारण शिक्षक पूरा समय विद्यालय को नहीं दे पाते हैं। न तो वे ग्रामीण जनता के सुख-दुःख के साथी होते हैं और न ही उनके हित चिंतन में भागीदार। स्थानीय शिक्षक भी प्रायः संकुचित राजनीति के शिकार रहते हैं। किंतु थोड़े से शिक्षक अभिभावकों से संपर्क में रुचि रखते हैं वे शासन के निर्देशों के अनुरूप अपने विचारों से सहमति रखने वाले अभिभावकों की समिति/संघ निर्मित कर दिखावे की भावना से कार्य करते हैं।

निश्चय ही बालक के विकास हेतु वर्तमान परिस्थितियों में विद्यालय और समुदाय के परस्पर संबंधों की आवश्यकता है जिसे अभिभावक और शिक्षक मिलकर ही पूरा कर सकते हैं। शिक्षक की विद्यालय के प्रति आस्थाएँ न होने से समुदाय का जुड़ाव भी विद्यालय से नहीं हो पाता है। फलतः ग्राम शिक्षा समिति या अभिभावक शिक्षक संघ केवल कागजी सिद्ध होते हैं।

अतः अभिभावकों और शिक्षकों के संबंधों को बढ़ावा देने वाले सार्थक प्रयासों की आवश्यकता है जिससे पंचायती राज समर्थ हो सके। इस हेतु अध्यापकों को व्यवहारिकता के आधार पर कार्य करना होगा।

2.0 उद्देश्य

प्राथमिक शिक्षा के लोकव्यापीकरण के लिए समुदाय को संगठित कर जन भागीदारी प्राप्त करने के कार्यक्रम के उद्देश्य इस प्रकार हैं:

1. बालकों के विकास के लिए शिक्षकों एवं अभिभावकों को विभिन्न कार्यक्रमों के लिए तैयार करना;
2. समुदाय को विद्यालय से जोड़ने के लिए वर्तमान स्थिति की समीक्षा करना;
3. समीक्षा उपरांत वर्तमान स्थिति में बदलाव लाने के लिए सार्थक व व्यावहारिक प्रयास करना, जिससे प्रत्येक की सहभागिता प्राप्त हो सके;
4. समुदाय को जोड़ने वाले प्रयासों को लक्ष्य तक सफलतापूर्वक पहुंचाने के लिए विभिन्न क्रियाकलापों व रणनीति के आयोजन में सक्रिय रूप से सभी को जोड़ना; तथा
5. क्रियाकलापों व कार्ययोजना में आने वाली कठिनाइयों को दूर कर सहयोग प्रदान करना।

मुख्य उद्देश्यः
अभिभावकों और शिक्षकों के बीच दूरी कम कर दोनों पक्षों को विद्यालय के क्रियाकलापों में सक्रिय कर, बालकों का विकास कर विद्यालय को सशक्त बनाना।

3.0 कार्यक्षेत्र

जबलपुर जिले में कुंडम विकास खंड में यह कार्यक्रम क्रियान्वित किया गया। यह विकास खंड आदिवासी बहुल व शैक्षिक दृष्टि से पिछड़ा हुआ है। कुंडम विकास खंड में संयुक्त राष्ट्रसंघ की पांच संस्थाएँ एवं भारत सरकार के संयुक्त प्रयासों से समुदाय आधारित प्राथमिक शिक्षा कार्यक्रम 'जनशाला कार्यक्रम' संचालित हैं। जनशाला कार्यक्रम के अंतर्गत नवाचार व अनूठे प्रयास से जन सहभागिता प्राप्त करने हेतु दीपोत्सव/प्रकाशोत्सव कार्यक्रम किया गया है। यह आदिवासी बहुल क्षेत्र है। पिछड़े वर्ग के लोग तुलनात्मक दृष्टि से इस वर्ग के बाद आते हैं। अनुसूचित जाति की जनसंख्या तीसरे क्रम पर है। सामान्य जाति के लोग तीनों जातियों की तुलना में बहुत कम हैं। कुल आबादी में अनुसूचित जाति 10.34 प्रतिशत, अनुसूचित जनजाति 66.30 प्रतिशत, अन्य पिछड़ा वर्ग 20.39 प्रतिशत एवं सामान्य जाति 2.97 प्रतिशत हैं।

4.0 दीपोत्सव/प्रकाशोत्सव

विभिन्न गतिविधियों के माध्यम से जन सहभागिता प्राप्त करने के प्रयास किए गए हैं। किंतु अपेक्षित सहभागिता की प्राप्ति के लिए एवं शिक्षकों की सक्रियता व अपनी आस्था विद्यालय के प्रति बढ़ाने के लिए अभिनव प्रयासों की पहल जारी रखी गई। अभिभावकों को 15 अगस्त, एवं 26 जनवरी के आयोजन व अन्य कार्यक्रम सरकारी कार्यक्रमों जैसे लगते हैं। वे चाहते हैं कि विभिन्न सामाजिक उत्सव व पर्व

भी विद्यालय में आयोजित किए जाएं। ऐसे विचार उत्साही शिक्षकों व अभिभावकों द्वारा प्राप्त होने पर विभिन्न बैठकों में उन पर चर्चा की गई। कुछ स्थानों पर इसके परिणाम अपेक्षित प्राप्त होने पर दीपोत्सव/प्रकाशोत्सव कार्यक्रम का आयोजन विकास खंड स्तर पर सुनियोजित तरीके से करने की योजना बनाकर उसे क्रियान्वित किया गया।

जनभागीदारी हेतु पूर्व में किए गए प्रयासः

1. **प्रेरक प्रशिक्षण** - प्रत्येक ग्राम पंचायत से एक महिला व एक पुरुष का चयन प्रेरक के रूप में करके उन्हें सात दिवसीय प्रशिक्षण प्रदान किया गया। प्रेरकों को ग्रामीण सहभागी समीक्षा (पी.आर.ए.) के माध्यम से ग्राम शिक्षा रजिस्टर निर्मित कर ग्राम शिक्षा योजना निर्माण व शाला प्रबंधन में सहयोग के लिए प्रशिक्षण दिया गया।
2. **ग्राम शिक्षा योजना का निर्माण व कार्यान्वयन** - ग्रामवासियों द्वारा अपने ग्राम में उपलब्ध संसाधनों के आधार पर ग्राम की परिस्थिति के अनुरूप शैक्षिक विकास हेतु ग्राम शिक्षा योजना निर्मित कर क्रियान्वित की गई।
3. **ग्राम शिक्षा समिति** - गुणवत्तायुक्त प्राथमिक शिक्षा की प्राप्ति के लिए शालेय प्रबंधन में भागीदारी सुनिश्चित करने हेतु ग्राम शिक्षा समिति का गठन कर प्रशिक्षण भी दिया गया।
4. **समुदाय शिक्षक** - शिक्षातंत्र में स्थानीय समुदाय की भागीदारी हेतु शिक्षक की अनुपस्थिति व कमी की स्थिति में स्थानीय शिक्षित युवा शाला में समुदाय शिक्षक के रूप में अध्यापन में सहयोग प्रदान करते हैं। इस हेतु प्रेरक के माध्यम से युवाओं को चुना गया है।
5. **महिला मंडल का गठन** - प्रत्येक ग्राम में बालिका शिक्षा को बढ़ावा देने के लिए महिला मंडल का गठन कर सहभागिता प्राप्त करने का भी प्रयास किया गया।
6. **माँ-बेटी मेला** - विकास खंड में महिला साक्षरता व बालिका शिक्षा की गतिविधियों को प्रोत्साहित करने के लिए विभिन्न स्थानों पर माँ-बेटी मेला आयोजित कर रोचक गतिविधियों का प्रदर्शन किया गया।
7. **ज शिक्षा केंद्र** - विद्यालय का वातावरण आकर्षक बनाने के लिए आनंददायी शिक्षा व्यवस्था हेतु खेल-खेल में शिक्षा व्यवस्था में सहज शिक्षा केंद्र की स्थापना समुदाय द्वारा की जाती है। इस केंद्र में विद्यालय में फिसल पट्टी, झूले, बाउंड्री वाल, अतिरिक्त कक्ष एवं आश्रय स्थान का निर्माण किया जाता है। इस हेतु कुछ राशि परियोजना मद से दी जाती है, शेष कार्य जन सहभागिता से किए जाते हैं।

5.0 दीपोत्सव कार्यक्रम की पृष्ठभूमि

'विद्यालय समाज का लघु रूप है' यह एक नवीन दृष्टिकोण है। माध्यमिक शिक्षा आयोग ने विद्यालय तथा समाज की पारंपरिक उपयोगिता की आवश्यकता का अनुभव करते हुए इस उद्देश्य की प्राप्ति के लिए सुझाव दिया कि विद्यालय में बालक बालिकाओं को ऐसे अवसर प्रदान किए जाने चाहिए जिनसे लाभ उठाकर वे विद्यालयी शिक्षा पूर्ण करने के पश्चात् सामाजिक क्रियाओं में भाग लेने की क्षमता प्राप्त कर सकें। इसके लिए विद्यालय में सामाजिक जीवन की क्रियाओं और अनुभवों को सरल, शुद्ध व संतुलित रूप में बालकों के समक्ष प्रस्तुत किया जाए। जब विद्यालयों में बालकों को ऐसे अनुभव दिए जाएंगे जो सामाजिक अनुभव से संबंध रखते हों और जिनको प्राप्त करके वे समाज के प्रमुख क्रियाकलापों से अवगत हो सकें तभी विद्यालयों को समाज का लघु रूप कहा जा सकेगा। समाज द्वारा विभिन्न पर्वों व त्यौहारों को मनाया जाता है। राष्ट्रीय पर्वों को सामूहिक रूप से विद्यालयों में मनाया जाता है जिसमें समाज के सदस्यों द्वारा सहभागिता की जाती है। किन्तु समाज द्वारा मनाये जाने वाले पर्वों व त्यौहारों को सामूहिक

रूप से विद्यालय में नहीं मनाया जाता। यदि विद्यालयों में इन पर्वों एवं त्यौहारों को मनाया जाए तो समाज का भावनात्मक जुड़ाव विद्यालय से निश्चिय ही होगा। इसके अतिरिक्त इन पर्वों व त्यौहारों को सामूहिक रूप से विद्यालयों में मनाने से विद्यार्थियों को व्यावहारिक ज्ञान प्राप्त होगा और संकीर्णता दूर होगी। विद्यार्थियों में एकता की भावना हढ़ेगी और वे मानव धर्म का पाठ पढ़ने की ओर अग्रसर होंगे।

जन सहभागिता के विभिन्न प्रयासों में गत सत्र में दीपावली उत्सव लगभग 20 - 25 विद्यालयों में मनाया गया । जिन ग्रामों के विद्यालयों में यह उत्सव मनाया गया, वहाँ समुदाय व विद्यालय अधिक निकट आए हैं। इन्हीं ग्रामों से प्राप्त प्रेरणा के आधार पर दीपोत्सव/प्रकाशोत्सव विकास खंड स्तर पर मनाने की योजना बनाई गई व इसका क्रियान्वयन किया गया । जन सह्रभागिता प्राप्त करने का यह एक अनूठा प्रयास व नवाचार है जिसे समुदाय द्वारा सराहा गया व पर्याप्त सहयोग दिया गया।

6.0 कार्यक्रम की उपयोगिता व आवश्यकता

दीपोत्सव/प्रकाशोत्व कार्यक्रम कुंडम विकास खंड में जन सहभागिता प्राप्त करने की दिशा में एक अद्वितीय व अनूठा प्रयास है। इस कार्यक्रम को निम्नलिखित आवश्यकताओं के कारण आयोजित किया गयाः

1. दीपावली अवकाश के कारण विद्यालय अनेक दिन बंद रहते हैं। विद्यालयों में धूल आदि की सफाई भी नहीं होती। इसके अतिरिक्त कई विद्यालयों में वार्षिक साफ-सफाई भी नहीं होती है, जबकि इस पर्व में हमारे घरों में साफ-सफाई होती है। अतः इस कार्यक्रम के माध्यम से विद्यालयों की सफाई करने के लिए सामूहिक प्रयासों की आवश्यकता है।

2. दीपावली का सार्वजनिक अवकाश होने के कारण शिक्षक अपने गृह ग्राम व निवास में दीपावली उत्सव मनाते थे। इस कार्यक्रम के माध्यम से शिक्षकों में भावनात्मक रूप से शाला के प्रति जुड़ाव पैदा करना है ताकि शिक्षक विद्यालय को अपना समझें। अपने घरों के साथ-साथ विद्यालय में भी यह उत्सव मनाएँ जिससे विद्यालय के प्रति उनका लगाव बढेगा।

3. समुदाय में मनाए जाने वाले त्यौहारों का विद्यालय में सामूहिक आयोजन करना जिसमें शिक्षक व विद्यालय में पढ़ने वाले विद्यार्थियों के अतिरिक्त समुदाय के सदस्यों को भी सम्मिलित करना है। सामाजिक जीवन, रीति-रिवाजों, परंपराओं का व्यावहारिक ज्ञान प्रदान करने के लिए प्रकाशोत्सव की विद्यालय में व्यवस्था की गई।

4. दीपोत्सव कार्यक्रम के माध्यम से समुदाय के लोगों को भावनात्मक रूप से जोड़ना ताकि सहभागिता के सार्थक प्रयासों की शुरूआत हो सके। दीपावली में घरों में सभी जगह दीप जलाए जाते हैं, यहाँ तक कि घूरे (कचरा फेंकने का स्थान) में भी। फिर विद्यालय में क्यों नहीं? यह भावना जन समुदाय के बीच उभारने व इसके माध्यम से विद्यालय से लगाव पैदा करने की आवश्यकता है।

5. शिक्षक के मार्गदर्शन में विद्यार्थियों ने विद्यालय में व्यक्तिगत व सार्वजनिक स्वच्छता हेतु कार्य किए। इसके महत्व को विद्यार्थियों को समझाने व प्रेरित करने की आवश्यकता है।

6. दीपावली में पटाखों से होने वाले प्रदूषण को कम करने हेतु सामूहिक आयोजन से विद्यार्थियों को मनोरंजन की सुविधा जन सहभागिता से उपलभ्ध कराई गई। पटाखे व आग आदि दुर्घटनाओं से बचाव

व दुष्परिणामों को रोकने हेतु शिक्षक व बड़े लोगों के निर्देशन व उपस्थिति में पर्व/त्यौहार मनाने के लिए विद्यार्थियों को प्रेरित किया गया।

7.0 दीपोत्सव/प्रकाशोत्सव के उद्देश्य

इस कार्यक्रम के निम्न उद्देश्य हैं:

1. समुदाय में विद्यालय के प्रति जन सहयोग में पहल के लिए आवश्यक वातावरण तैयार करना जिससे समुदाय विद्यालय की सहायता के लिए तैयार हो।
2. शिक्षकों को विद्यालय के प्रति लगाव बढ़ाने के लिए प्रेरित करना जिससे शिक्षकों का विद्यालय व विद्यार्थियों के प्रति अपनत्व भाव बढ़े तथा शिक्षा में गुणवत्ता सुधार हेतु शिक्षक स्वतः ही तैयार हो सकें।
3. शिक्षक और समुदाय के बीच दीपोत्सव कार्यक्रम के माध्यम से मानसिक दूरी कम कर शिक्षा की व्यवस्था में दोनों पक्षों को सक्रिय करना।
4. सामाजिक उत्सवों को विद्यालयों में आयोजित कर समुदाय के सभी वर्गों के बीच मनाना।
5. विद्यालयों में स्वच्छता अभियान चलाकर सार्वजनिक स्वच्छता के महत्व को विद्यार्थियों को समझाना।
6. दीपावली में होने वाले प्रदूषणों की चर्चा द्वारा विद्यार्थियों को प्रदूषण कम करने की सार्थक पहल के लिए तत्पर करना।
7. सामाजिक कुरीतियों को कम करने में शैक्षिक दृष्टि से समुदाय को तैयार करना एवं स्वस्थ समाज का निर्माण करना।
8. विद्यालय परिसर में विद्यार्थियों द्वारा सामूहिक रूप से दीपावली उत्सव मनाना व उत्सव में होने वाली दुर्घटनाओं पर नियंत्रण रखना।

8.0 दीपोत्सव कार्यक्रम का क्रियान्वयन

जबलपुर जिले के कुंडम विकास खंड में दीपोत्सव/प्रकाशोत्सव मनाने के लिए विभिन्न चरणों में क्रियाकलापों का आयोजन योजनापूर्वक किया गया जिससे समुदाय के सभी वर्गों की सराहना प्राप्त हुई। प्रकाशोत्सव की योजना एवं क्रियान्वयन निम्न चरणों में संपन्न हुआ:

8.1 गतवर्ष के अनुभव

प्रेरक प्रशिक्षण संकुल बैठकों व विकास खंड स्तरीय बैठकों में पूरा किया गया। आंगनबाड़ी कार्यकर्ताओं के प्रशिक्षण में जन सहयोग प्राप्त करने हेतु इस कार्यक्रम के बारे में चर्चा हुई। कुछ शिक्षकों को व्यक्तिगत मार्गदर्शन लेकर इस कार्यक्रम को आयोजित करने के सुझाव बैठकों में दिए गए। दीपावली के बाद संकुल बैठकों में इस नवाचार कार्यक्रम में आशा से अधिक जन सहयोग प्राप्त हुआ । कुछ ग्रामों में सर्वाधिक

दीपक पाठशाला में प्रज्जवलित हुए। 40-50 घरों की बस्ती में प्रत्येक घर में आर्थिक स्थिति अनुसार 5-6 दीपक जलाए गए। प्रत्येक घर से पूजा का एक-एक दीपक परिवार के सदस्यों व शाला में अध्ययनरत विद्यार्थियों द्वारा विद्यालय में लाकर सजाया गया जबकि पिछले सालों की दीपावली में विद्यालय में अंधकार छाया रहता था। विद्यालय में प्रत्येक घर की तुलना में 50-60 अधिक दीपक प्रज्ज्वलित थे। इस उत्सव के माध्यम से शिक्षकों के साथ-साथ समुदाय के लोगों का विद्यालय के प्रति भावनात्मक जुड़ाव भी बढ़ा। शिक्षकों ने इस कार्यक्रम के माध्यम से जन सहयोग की पहल कर विद्यालय को समुदाय के सदस्यों से जोड़ने में सफलता प्राप्त की। अतएव कुछ शिक्षकों व ग्रामवासियों से चर्चा द्वारा इस बारे में जानकारी मॉनीटिरिंग के दौरान डाईट सदस्यों को प्राप्त हुई।

8.2 योजना निर्माण एवं कार्य विभाजन

डाईट सदस्यों द्वारा गतवर्ष के प्राप्त अनुभवों व जानकारी के आधार पर योजना बनायी गई। कार्य को पूर्णता प्रदान करने में टीम के सदस्यों का आपसी तालमेल और उनकी क्षमताओं, योग्यताओं का लाभ प्राप्त होना चाहिए। अतएव टीम के सदस्यों की क्षमता के अनुरूप कार्य विभाजन कर कार्य सौंपा गया, यथा - संयोजन प्रभारी, योजना निर्माण प्रभारी, पत्रिका प्रभारी, आदि।

8.3 पत्रिका व योजना हेतु पूर्व परीक्षण

पूरे विकास खंड में योजना की विस्तृत जानकारी देने के पूर्व परीक्षण हेतु एक संकुल/जन शिक्षा केंद्र में स्थित शिक्षकों से संपर्क कर योजना में आवश्यक सुधार किया गया। इस कार्य में संयोजन प्रभारी ने लौहकरी जन शिक्षा केंद्र के ग्रामों हिनोतिया, महगवां, अमझर, कुठराघोंदी, लौहकरी में भ्रमण कर संपर्क किया। इसके अतिरिक्त जन शिक्षा केंद्र लौहकरी में जन शिक्षा केंद्र प्रभारी की अध्यक्षता में आयोजित की गई बैठक में योजना को सफल बनाने हेतु शिक्षकों द्वारा व्यावहारिक सुझाव दिए गए। तदनुसार योजना में आवश्यक संशोधन किए गए। इस कार्यक्रम में आने वाली बाधाओं को चिह्नित किया गया तथा उनके उपायों पर चर्चा की गई। शिक्षकों ने कार्यक्रम को सफल बनाने का संकल्प लिया।

8.4 योजना को अंतिम रूप देने हेतु भैठक

कुंडम विकास खंड में योजना के क्रियान्वयन हेतु दिनांक 12 अक्तूबर 2000 को कुंडम क्षेत्र के समस्त जन शिक्षकों की बैठक भुलाई गई। कार्यक्रम की अध्यक्षता विकास खंड शिक्षा अधिकारी, कुंडम ने की। कार्यक्रम के मुख्य अतिथि ने फोल्डर के माध्यम से दीपोत्सव-प्रकाशोत्सव को करने के लिए विस्तृत जानकारी दी। उन्होंने सभी जन शिक्षकों से आग्रह किया कि यह योजना ऐच्छिक है, अनिवार्य नहीं है। इस योजना के माध्यम से प्रत्येक ग्राम के विद्यालयों, समुदायों, शिक्षकों, ग्राम शिक्षा समिति सदस्यों व भूतपूर्व विद्यार्थियों से संपर्क कर कार्यक्रम को करने का आग्रह व निवेदन किया जाए। शिक्षकों के लिए कार्यक्रम में सम्मिलित होना स्वैच्छिक रखा गया। शिक्षकों को कार्यक्रम को अपने ढंग से करने की पूरी छूट दी गई। विद्यालय में अग्नि दुर्घटना न हो इस बारे में पर्याप्त निर्देश दिए गए। विद्यार्थियों की सुरक्षा के बारे में चर्चा की गई। इसके बाद कुंडम विकास खंड के जनशाला कार्यक्रम प्रभारी ने जन शिक्षकों से चर्चा की। चर्चा के विषय थे - योजना में आने वाली बाधाएँ व कठिनाइयाँ - इनके निराकरण के उपाय, दीपोत्सव कार्यक्रम को प्रभावी कैसे बनाया जाए? कार्यक्रम में जन सहयोग कैसे प्राप्त हो? आर्थिक मदद के बिना यह कार्यक्रम कैसे किया जाए? आदि-आदि। इसके अतिरिक्त जन शिक्षकों व बी.आर.सी. सदस्यों का आह्वान किया गया कि वे आपस में कंधे से कंधा जोड़कर दीपोत्सव कार्यक्रम सफल बनाने में जुट जाएँ

व प्रत्येक ग्राम के शिक्षा सदस्यों तक दीपोत्सव कार्यक्रम करने का संदेश ले जाएं तथा उनके सहयोग से कार्यक्रम को पूर्णता प्रदान करें। इसके साथ-साथ किसी भी विद्यालय में अंधकार न छाया रहे। बी.आर.सी. ने विभिन्न ग्रामों के शिक्षकों व ग्राम शिक्षा समिति के सदस्यों से व्यक्तिगत संपर्क करने हेतु विभिन्न टीमों का गठन करने हेतु सुझाव दिया। बी.आर.सी. के अन्य सदस्यों ने अधिकाधिक संपर्क की योजना को व्यावहारिक रूप देने के लिए जन शिक्षकों से निवेदन कर प्रत्येक जन शिक्षा केंद्र के लिए योजना बनवाई। तत्पश्चात् दो पृथक-पृथक टीमें गठित कर भ्रमण कार्यक्रम निश्चित किया गया। इनके अतिरिक्त जन शिक्षकों व अपने जन शिक्षा केंद्रों की कुछ शालाओं के नामों की सूची प्रस्तुत की गई, जहाँ भविष्य में यह कार्यक्रम भव्यता के साथ आयोजित होगा। दीपावली के दिन जीप द्वारा विभिन्न ग्रामों के भ्रमण की योजना बनाने हेतु प्रमुख सी.आर.सी. एवं भी.आर.सी के साथ भैठक डाईट, जभलपुर में करने का निश्चय किया गया। इस बैठक में जन शिक्षकों का कार्यक्रम के प्रति उत्साह देखते ही बनता था। विकास खंड शिक्षा अधिकारी कुंडम के कार्यरत स्टाफ ने भी तय किया कि वे भी सामूहिक रूप से कार्यालय में दीपोत्सव-प्रकाशोत्सव का कार्यक्रम आयोजित करेंगे।

8.5 दीपोत्सव/प्रकाशोत्सव के आयोजन हेतु तैयारी

दीपोत्सव/प्रकाशोत्सव मनाने के लिए शिक्षकों द्वारा विद्यालय में पढ़ने वाले विद्यार्थियों के सद्वयोग दीपावली से पूर्व विद्यालय में स्वच्छता अभियान चलाया गया। दीपावली के दिन विद्यार्थियों को अपने-अपने घरों से एक-एक दीपक शालाओं में जलाने के लिए प्रेरित किया गया। विद्यालय के भूतपूर्व विद्यार्थियों व ग्राम शिक्षा समिति के सदस्यों को दीपक विद्यालय में लाने के लिए प्रेरणा दी गई। सामूहिक दीपावली उत्सव के लिए प्रसाद हेतु बताशा, चना, मुरमुरा, धान आदि की व्यवस्था समुदाय की तरफ से करने के प्रयास किए गए। कहीं-कहीं पटाखे, फुलझडी की व्यवस्था भी हुई। कुछ ग्रामों में महिला मंडल आदि द्वारा विद्यालय प्रांगण में लिपाई-पुताई भी की गई।

9.0 दीपोत्सव/प्रकाशोत्सव का आयोजन

कार्तिक अमावस्या की गोधूलि भेला में शिक्षकों की उपस्थिति में विद्यार्थियों ने अपने-अपने घर से एक-एक दीपक लाकर विद्यालय में सजावट की। सामूहिक उत्सव के लिए विद्यार्थियों के अभिभावक पूजन सामग्री आदि लेकर एकत्र हुए। शिक्षकों ने ग्राम के बुजुर्ग व्यक्तियों द्वारा विद्यालयों में पूजन करवाकर, प्रसाद आदि का वितरण किया। विद्यार्थियों द्वारा हर्षोल्लास से अपने-अपने साथियों के साथ पटाखे आदि फोड़कर दीपावली मनाई गई। विद्यालय परिसरों में पहली बार समुदाय ने सामूहिक रूप से सामाजिक उत्सव मनाया। समुदाय के सभी वर्गों ने दीपोत्सव/ प्रकाशोत्सव कार्यक्रम की सराहना कर सहयोग प्रदान किया।

दीपोत्सव/प्रकाशोत्सव आयोजित करने वाले विशष्ट विद्यालय

1. प्राथमिक शाला, महगवां - शाला में समुदाय द्वारा सामूहिक पूजन कर विद्यार्थियों द्वारा पटाखे फोड़े गए।

2. प्राथमिक शाला, सदाफल - पंचायत प्रतिनिधियों तथा महिलाओं द्वारा सामूहिक रंगोली मनाई गई।

3. प्राथमिक शाला, सुभाष नगर - समुदाय की, विशेषकर विद्यार्थियों की माताओं की उपस्थिति सराहनीय रही।

4. प्राथमिक शाला, लखनवारा - जनपद पंचायत प्रतिनिधियों की सक्रिय भूमिका रही।

5. प्राथमिक शाला, हिनोता - ग्राम के महिला मंडल द्वारा विद्यालय प्रांगण की लिपाई-पुताई कर दीपोत्सव को गरिमामय भनाया गया।

6. प्राथमिक शाला, कुंडम - ग्रामवासियों द्वारा दीपोत्सव पर प्रसाद वितरण किया गया।

7. प्राथमिक कन्या शाला, कुंडम - प्रधान पाठक के प्रयासों से पूर्व माध्यमिक शाला की छात्राओं व समुदाय की विशेष उपस्थिति में भव्य कार्यक्रम मनाया गया।

8. प्राथमिक शाला, बिचुआ - विद्यालय की शिक्षिका ने अपने बच्चों के साथ विद्यालय में दीपावली मनाकर साम्प्रदायिक सद्‌भावना का परिचय दिया।

9. प्राथमिक शाला, लौहकरी - शाला परिसर की सजावट देखने लायक थी।

10. शिक्षा गारंटी शाला, हघराजी - इस शाला में गुरुजी ने विशेष प्रयास करके पूरे समुदाय की उपस्थिति में दीपोत्सव मनाया।

11. प्राथमिक शाला, चौरई - पंचायत प्रतिनिधियों की सक्रिय सहभागिता रही।

12. शिक्षा गारंटी शाला, सहदीर - गांव के लोग शाला विकास के लिए संकल्पित हुए।

10.0 दीपोत्सव/प्रकाशोत्सव कार्यक्रम के पश्चात् की प्रतिक्रिया

कुंडम विकास खंड के दीपोत्सव कार्यक्रम के माध्यम से समुदाय एवं विद्यालय के मध्य दूरी कम हुई। विद्यालयों में इसी तरह अन्य उत्सवों व कार्यों में सहयोग देने के लिए समुदाय तैयार है। जरूरत है प्रेरणा स्रोत बनकर सहयोग लेने वालों की । इस कार्य को शिक्षक बहुत अच्छे ढंग से कर सकता है। शिक्षकों का भी विद्यालय के प्रति अपनत्वभाव बढ़ा। विद्यार्थियों ने पहली बार सामूहिक रूप से सामाजिक उत्सव विद्यालय प्रांगण में मनाकर आनंद की अनुभूति प्राप्त की । समुदाय के विभिन्न वर्गों की प्रतिक्रिया अलग-अलग प्रकार की रही। समुदाय के उस प्रत्येक सदस्य में, जो दीपोत्सव कार्यक्रम में सम्मिलित हुआ, कार्यक्रम की सराहना की और विद्यालय में इस तरह के आयोजनों को शिक्षा के क्षेत्र में सार्थक बताया।

11.0 दीपोत्सव/प्रकाशोत्सव के अपेक्षित परिणाम

बाल विकास के संदर्भ में अभिभावक - शिक्षक सहयोग अपेक्षानुरूप प्राप्त हुआ जिसके परिणाम विकास खंड में आयोजित विभिन्न गतिविधियों में परिलक्षित हुए।

ग्राम शिक्षा समिति/अभिभावक शिक्षक संघ की बैठक नियमित व समय पर होने लगी। बैठकों में उपस्थिति बढ़ी। कुछ ग्रामों में यह उपस्थिति शत प्रतिशत होने लगी। अभिभावकों द्वारा विभिन्न क्रियाकलापों में सहभागिता प्रदान की जाने लगी। सहज शिक्षा केंद्रों की स्थापना में विभिन्न ग्रामों के मध्य होड़ लगने लगी। इस प्रकार पंचायती राज संस्थाएँ सशक्त हुईं।

2. अभिभावकों में बालकों के अध्ययन के प्रति जागरूकता बढ़ने व शिक्षकों द्वारा अध्ययन के लिए आवश्यक वातावरण उत्पन्न करने से शिक्षा में गुणवत्ता के प्रयासों को सफलता मिलने लगी जो पांचवीं कक्षा के परीक्षा परिणामों से स्पष्ट दिखाई देती है। पांचवीं कक्षा की परीक्षा का आयोजन जिला बोर्ड द्वारा किया जाता है। विकास खंड के परीक्षा परिणाम इस कार्यक्रम की सफलता को दर्शाते हैं।

वर्षवार परीक्षा परिणाम - उत्तरोत्तर प्रगति की ओर

सत्र	5वीं कक्षा में उत्तीर्ण विद्यार्थियों का प्रतिशत
1998-1999	39.37
1999-2000	49.97
2000-2001	69.72
2001-2002	77.77
2002-2003	78.85

प्राथमिक शालाओं के भौतिक परिवेश में संवर्द्धन-जनसहभागिता प्राप्ति के इस अनूठे कार्यक्रम से अभिभावक व ग्रामवासी विद्यालय को अपना मानकर उसके रखरखाव एवं परिवेशीय वातावरण सुधार में अथक सहयोग प्रदान करने लगे हैं। इससे निम्नलिखित दो लाभ हुए हैं:

11.1 सहज शिक्षा केंद्र निर्माण में सहयोग

शिक्षा को जीवन के लिए अभ्यास स्थली का रूप देने और अध्ययन योग्य बच्चों को शाला के प्रति आकर्षित करने, आनंददायी शिक्षा तथा खेल-खेल में शिक्षा को बढ़ावा देने एवं समुदाय और शाला को निकट लाने के उद्देश्य से सहज शिक्षा केंद्र की स्थापना की कल्पना की गई है। इसकी स्थापना मुख्यतः समुदाय द्वारा अपने बच्चों के लिए की जाती है। जनशाला कार्यक्रम द्वारा इस कार्य में सहयोग प्रदान किया जाता है। इसके अंतर्गत आदिवासी बहुल क्षेत्र कुंडम में 36 प्राथमिक शालाओं एवं 7 शिक्षा गारंटी शालाओं को सहज शिक्षा केंद्रों के रूप में विकसित किया गया है। शालाओं में भागना, कूदना, झूलना, धकेलना, फिसलना, नाचना आदि गतिविधियों के लिए ग्रामीण परिवेश की आवश्यक एवं मनोरंजक सामग्री तैयार की गई । इससे परिवेश में विभिन्न क्रियाकलाप सीखने, सामाजिक, नैतिक शिक्षा और स्वस्थ रचनात्मक गतिविधियों, सृजनशीलता आदि को प्रोत्साहन मिला है।

शाला को आकर्षण का केंद्र बनाने हेतु बाउंड्री वाल, फिसल पट्टी, झूले, क्यारियाँ, पौधे लगाना आदि सहज शिक्षा केंद्रों के लिए वरदान प्रतीत होते हैं। आदिवासी निर्धन क्षेत्र होते हुए भी समुदाय से 5000 से लेकर 20000 रुपये तक का जन सहयोग विविध रूपों में प्राप्त हुआ है। इस धनराशि से 18 शालाओं में बाउंड्री वाल, सहज शिक्षा केंद्र वाली प्रत्येक शाला में झूला, फिसल पट्टी, चबूतरा, आदि मनोरंजन तथा खेलने के संसाधनों का जुटाना संभव हुआ।

11.2 जन सहयोग से शाला भवनों का निर्माण

विकास खंड कुंडम में प्राथमिक विद्यालयों में जिस प्रकार का सहयोग प्राप्त हुआ वह स्वयं में अ पूर्व है। इस महत्वपूर्ण उपलब्धि में दीपोत्सव कार्यक्रम एक महत्वपूर्ण कड़ी सिद्ध हुआ जिससे लोगों का ान शिक्षा की ओर बढ़ा है।

विकास खंड में संचालित शिक्षा गारंटी शालाओं में भवन न होने से सात ग्रामों के ग्रामवासियों द्वारा ान निर्माण किए गए हैं। जनशाला कार्यक्रम के अंतर्गत मात्र 15000 रु. प्रति शाला की दर से योजना अ न के रूप में दिए गए थे। शेष व्यवस्था ग्रामवासियों द्वारा की गई जिसका विवरण इस प्रकार है:

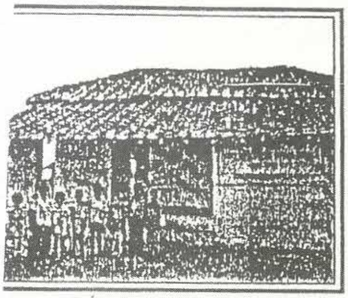
जन सहयोग से भवन निर्माण

क्र. सं.	शाला का नाम	पंचायत	जन सहयोग राशि (विविध स्वरूपों में)	भवन निर्माण की अनुमानित कुल लागत
1.	शिक्षा गारंटी शाला, अम्होटाला, करनपुरा	बदुआ	30,000.00 (भूमि दान में दी गई)	70,000.00
2	शिक्षा गारंटी शाला, इंदिरा आवास कॉलोनी	बघराजी	15,000.00	45,000.00
3	शिक्षा गारंटी शाला, ददराटोलाइमलई	इमलई	25,000.00 (भूमि दान में दी गई)	50,000.00
4	शिक्षा गारंटी शाला, झिरनी टोला झिरना	खैरी	13,000.00	30,000.00
5	शिक्षा गारंटी शाला, गांधीनगर देवरी	देवरी	13,000.00	25,000.00
6	शिक्षा गारंटी शाला, झिरियाटोला तौंरी	तौंरी	20,000.00 (भूमि दान में दी गई)	45,000.00
7	शिक्षा गारंटी शाला, मढ़ईटोला (देवरीकला)	देवरीकला	15,000.00	30,000.00
		योग	**1,31,000.00**	**2,95,000.00**

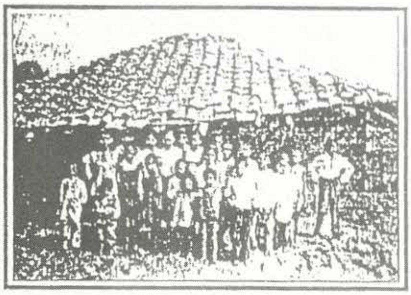
2.0 निष्कर्ष

ीपोत्सव कार्यक्रम समुदाय आधारित प्राथमिक शिक्षा - जनशाला कार्यक्रम के अंतर्गत एक अनूठा नवाचारी यास है जिससे सहज शिक्षा केंद्र प्राथमिक शाला भवनों के निर्माण में जन भागीदारी प्राप्त करने में सफलता ाप्त हुई है। शिक्षकों द्वारा गुणवत्तापूर्ण शिक्षा प्रदान करने के प्रयासों की सफलता 5वीं कक्षा के बोर्ड परीक्षा परिणामों की उत्तरोत्तर प्रगति में स्पष्ट दिखाई देती है। यह प्रयास विकास खंड कुंडम के शिक्षकों के सहयोग से सफलतापूर्वक संपन्न हुआ।

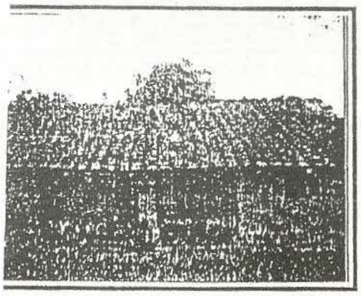
आदिवासी बाहुल्य क्षेत्र की महत्वपूर्ण उपलब्धि (भवन निर्माण)



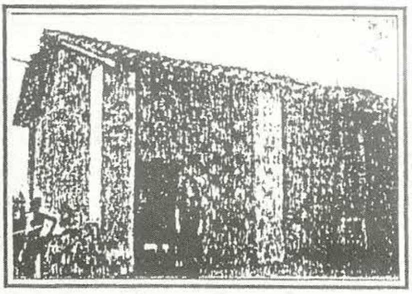
शिक्षा गारंटी शाला
मड़ई टोला, देवरीकला



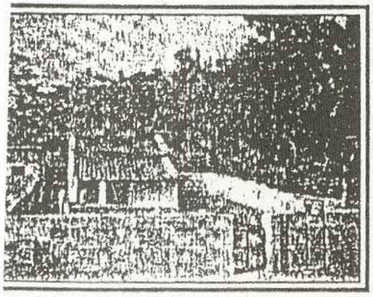
शिक्षा गारंटी शाला
झिरिया टोला, तौरी



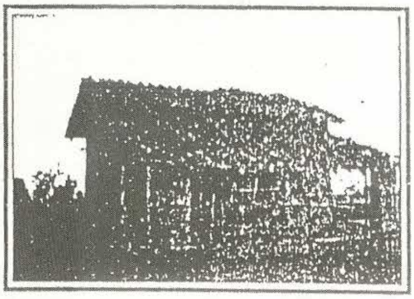
शिक्षा गारंटी शाला
आम्हा टोला, करनपुरा



शिक्षा गारंटी शाला
इंदिरा आवास कॉलोनी, बघराजी

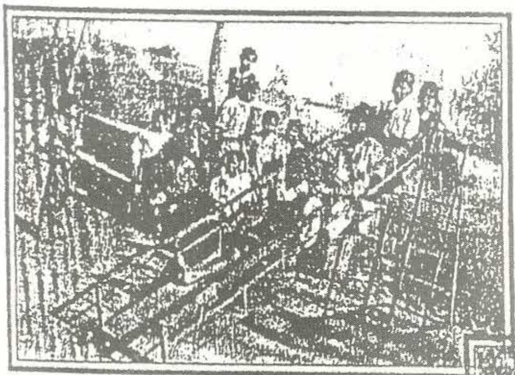


(परिसर निर्माण)
प्राथमिक शाला, बदुआ

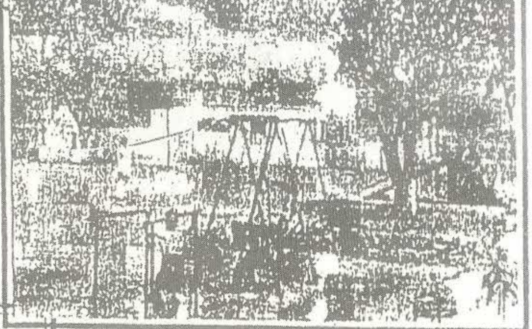


शिक्षा गारंटी शाला
ददरा टोला, इमलई

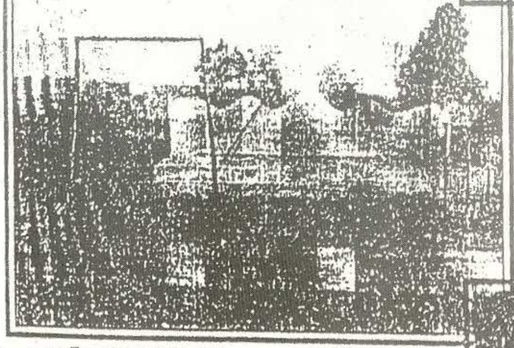
सहज शिक्षा केन्द्र चित्रमय झलकियाँ



सहज शिक्षा केन्द्र मोहनी में खेलते हुए बच्चे



सहज शिक्षा केन्द्र हर्रा टीकुर में खेलते हुए बच्चे



सहज शिक्षा केन्द्र झिरिया में समुदाय द्वारा निर्मित चबूतरा

सहज शिक्षा केन्द्र भिम्पार

25

KUNJAPURI MODEL: AN INNOVATIVE EXPERIMENT IN PRIMARY EDUCATION IN UTTARANCHAL STATE

कुंजापुरी मॉडल : प्राथमिक शिक्षा क्षेत्र में उत्तरांचल राज्य में एक अभिनव प्रयोग

रंग बहादुर सिंह

ABSTRACT

Innovative experiments in education provide precious fresh life-blood to the education system. Kunjapuri model was the result of a visit by six teachers from Uttaranchal state to some rural schools run by the Rishi Valley Education Trust. This innovative experiment may well be expected to transform the primary educaiton in this state, especially in its low-literacy, far-flung villages. This paper on Kunjapuri Model and the 31 project schools run under it describes how this model was developed, its project schools in three development blocks (viz., Munsiari in district Pithoragarh, Mori in district Uttarkashi and Bhilangana in district Tehri Garhawal), its basic principles and major factors and processes. The paper also describes the various state and district level resource groups that were constituted to guide the project and the details of the project schools. The paper concludes with a sample of the reactions about Kunjapuri Model from various people, those involved in the project as well as its beneficiaries.

1.0 प्रस्तावना

भारत के नवीन राज्यों में से एक, उत्तरांचल राज्य का गठन 9 नवम्बर, 2000 को किया गया। इसमें 2 मंडल तथा 13 जनपद हैं जिन्हें 95 विकास खंडों में बाँटा गया है। सन् 2001 में उत्तरांचल की जनसंख्या 84,79,562 (पुरुष - 43,16,401 और महिलाएँ - 41,63,161) थी। उत्तरांचल राज्य का अधिकांश क्षेत्र पहाड़ी है। सन् 2001 में उत्तरांचल की साक्षरता दर 72.28 प्रतिशत थी जो पुरुष वर्ग के लिए 84.01 प्रतिशत और महिला वर्ग के लिए 60.26 प्रतिशत थी। प्राथमिक शिक्षा के प्रसार के लिए ऋषि वैली शिक्षा ट्रस्ट के सौजन्य से राज्य के तीन जनपदों - पिथौरागढ़, टिहरी तथा उत्तरकाशी में कुंजापुरी मॉडल विकसित करके एक अभिनव प्रयोग का प्रारंभ किया गया। यह लेख इस अभिनव प्रयोग के विषय में विस्तृत जानकारी देने हेतु एक प्रयास है।

27 अक्तूबर, 2002 को डी.पी.ई.पी. की सहायता से उत्तरांचल राज्य के छः अध्यापकों के समूह ने ऋषि वैली शिक्षा ट्रस्ट द्वारा संचालित ग्रामीण विद्यालयों का दौरा किया। इस यात्रा के दौरान उन्होंने जो कुछ वहाँ देखा और सीखा उसी से कुंजापुरी मॉडल का जन्म हुआ।

2.0 कुंजापुरी मॉडल के उद्देश्य

- बहुकक्षा शिक्षण प्रणाली के अंतर्गत कलर कोडिंग, लोगो निर्धारण, पिक्टोरियल लैडर, समूह प्रबंधन, एवं समय प्रभंधन द्वारा आनंददायी युक्ति का विकास करना;

- सीखने-सिखाने की प्रक्रिया को अधिक बोधगम्य एवं रुचिकर बनाना;
- बच्चों में सृजनशीलता एवं रचनात्मक क्षमता का विकास करना;
- बच्चों में समस्या समाधान हेतु खोजी प्रवृत्ति का विकास करना;
- समूह में कार्य करने की प्रवृत्ति के विकास से समाजीकरण में परस्पर सहयोग की भावना विकसित करना;
- खेल-खेल में एवं गतिविधियों के द्वारा अधिगम क्रिया समृद्ध करना;
- बच्चों की अधिगम क्रिया का सतत् मूल्यांकन करना;
- बच्चों की रुचि के अनुसार रंगीन एवं चित्रात्मक शिक्षण-अधिगम सामग्री विकसित करना;
- बच्चों में नेतृत्व की भावना विकसित करने हेतु बाल सरकार का गठन;
- बच्चों द्वारा बच्चों के सीखने में आ रही कठिनाइयों को दूर करने के लिए स्वंय बच्चों की सहायता से बाल सहयोगी कार्यक्रम का विकास करना;
- शिक्षण क्रिया हेतु अध्यापकों में मौलिक एवं रचनात्मक चिंतन उत्पन्न करने हेतु लर्निंग कार्डों का प्रयोग करना;
- समुदाय को कक्षा शिक्षण प्रक्रिया से जोड़ने के लिए तथा स्थानीय विषय-वस्तु (स्थानीय लोक कथाएँ, लोकोक्तियाँ, मिट्टी तथा कपड़े के खिलौने, आदि) के विकास हेतु मातृ समिति का गठन करना; तथा
- जनपद में नवीन शिक्षणविधा के संचालन के लिए जिला संदर्भ समूह एवं राज्य संदर्भ समूह का विकास करना।

3.0 आवश्यकता

प्राथमिक शिक्षा की गुणवत्ता, सार्वजनीकरण एवं शिक्षा में जनसहभागिता सुनिश्चित करने हेतु कतिपय गैर सरकारी संगठनों ने विशिष्ट सामाजिक एवं आर्थिक अध्ययन के पश्चात् शैक्षिक नवाचारों को विकसित कर अपने राज्यों के शिक्षण-अधिगम के क्षेत्र की एक विशिष्ट दिशा दी है। ऋषि वैली, नली-कली, दिगन्तर एवं एकलव्य जैसी संस्थाओं ने भी विशिष्ट मानक निर्धारित करते हुए अपने शैक्षिक नवाचारों की लोकप्रियता स्थापित की है।

उत्तरांचल राज्य एक नवगठित राज्य है। इस राज्य की अपनी विशिष्ट भौगोलिक, सांस्कृतिक, सामाजिक व आर्थिक पहचान है। शिक्षा के क्षेत्र में प्राथमिक स्तर पर शिक्षकों की कमी, एकल अध्यापकीय विद्यालयों की व्यवस्था, प्रभावी निरीक्षण का अभाव, सम्प्राप्ति स्तर की न्यूनता, जनसहभागिता की कमी, नवीनतम शैक्षिक तकनीकों के प्रयोग का अभाव जैसी अनेक समस्याएँ राज्य की शैक्षिक गुणवत्ता के लिए चुनौतियां हैं। वर्तमान में राज्य में 13 जनपदों के 95 विकास खंडों में 11,330 परिषदीय प्राथमिक विद्यालय हैं। इन विद्यालयों में 10,70,091 बच्चे कक्षा 1 से 5 तक नामांकित हैं जिनमें 26,620 नियमित अध्यापक

त 2,020 शिक्षा मित्र सेवारत हैं। राज्य में 2,538 प्राथमिक विद्यालय एकल अध्यापकीय हैं। 1,072 लयों में छात्र संख्या 20 से कम है तथा राज्य में 60 प्रतिशत से भी अधिक विद्यालयों में दो या शिक्षक कार्यरत हैं। राज्य के पर्वतीय क्षेत्र में अध्यापक-छात्र अनुपात 1:27 तथा मैदानी क्षेत्र में 1:68

विश्लेषण से स्पष्ट है कि राज्य के परिषदीय विद्यालयों में महत्वपूर्ण आवश्यकता बहुकक्षा शिक्षण/ तरीय शिक्षण की है। आश्चर्य नहीं कि इन परिस्थितियों में प्राथमिक शिक्षा आजकल बच्चों के लिए बन गई है। यह बोझ केवल पुस्तकों का ही नहीं वरन् एक मानसिक बोझ भी है। प्राथमिक शिक्षा रूप में पांच साल तक हंसी-खुशी से बीतने वाली यह बाल्यावस्था छात्रों को कक्षा-कक्ष में कैदी के प में बदलकर उनके जीवन की एक कड़वी स्मृति बन गई है। पाठ्यक्रम और परीक्षा का भय छात्रों ो हमेशा भयभीत करता रहता है। निर्धारित पाठ्यक्रम को हंसी-खुशी और उत्साह के साथ सीखने के िए उत्तरांचल मे शैक्षिक नवाचारों के विकास की आवश्यकता है।

उक्त आलोक में ऋषि वैली सैटेलाइट स्कूल पैटर्न (आंध्र प्रदेश) को उत्तरांचल के परिवेश में प्रशासित किया गया तथा कक्षा 1 तथा 2 के बच्चों के लिए कुंजापुरी मॉडल का विकास किया गया है। वर्तमान में कुंजापुरी मॉडल का प्रयोग जनपद पिथौरागढ़ में मुनस्यारी विकास खंड, जनपद टिहरी में भिलंगना विकास खंड तथा जनपद उत्तरकाशी में मोरी विकास खंड के 10 - 10 परिषदीय प्राथमिक विद्यालयों में किया गया है।

4.0 नवाचारी विधा का नामकरण

बहुकक्षा शिक्षण प्रणाली के अंतर्गत ऋषि वैली पैटर्न को उत्तरांचल के परिवेश में प्राथमिक विद्यालय आर्स (नरेंद्र नगर), टिहरी गढ़वाल में लागू किया गया। यह विद्यालय कुंजापुरी मंदिर से उत्तर-पश्चिम दिशा में लगभग 3 कि.मी. की दूरी पर नीचे की ओर कुंजापुरी घाटी में स्थित है। दिनांक 4 जनवरी, 2004 को प्राथमिक विद्यालय आर्स में इस नवीन विधा का उद्घाटन नरेंद्र नगर विधान सभा क्षेत्र के माननीय विधायक सुबोध उनियाल द्वारा किया गया। विद्यालय में आयोजित समारोह में उपस्थित शिक्षा विभाग के राज्य, जनपद तथा क्षेत्र स्तर के अधिकारियों, जनप्रतिनिधियों, अध्यापकों एवं समुदाय के लोगों के बीच

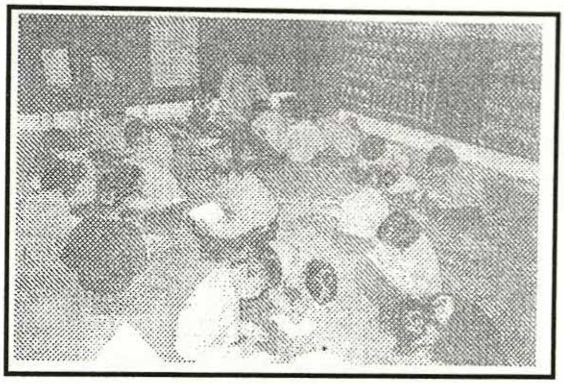
मुख्य अतिथि ने सर्वसम्मति से इस नवीन विधा से सुसज्जित मॉडल को 'कुंजापुरी मॉडल ' के ना से उद्घोषित किया। अतः कुंजापुरी घाटी में विकसित इस शैक्षिक नवाचार को कुंजापुरी मॉडल के ना से जाना जाता है।

कुंजापुरी मॉडल को विकसित करने हेतु 12 क्रियाकलाप संचालित किए गए, जिनका ब्यौरा परिशिष्ट दिया गया है।

5.0 कुंजापुरी मॉडल के आधारभूत सिद्धान्त

कुंजापुरी मॉडल के आधारभूत सिद्धान्त निम्नलिखित हैं:

- बच्चा दबावमुक्त वातावरण में सीखता है।
- सीखने में निरंतरता बनी रहती है।
- कक्षा-शिक्षण प्रक्रिया 6 समूहों (तैयारी समूह, परिचय समूह, अभ्यास समूह, पुनर्बलन समूह, मूल्यांक समूह तथा संर्म्वद्धन समूह) में संचालित होती है।
- पाठ्यक्रम कक्षावार तथा विषयवार सीखने की चित्रयुक्त सीढ़ी के रूप में होना चाहिए।
- कलर-कोडिंग : कक्षा -1 के लिए गुलाबी, कक्षा - 2 के लिए पीला तथा पर्यावरणीय अध्ययन के लिए हरा रंग निर्धारित है।
- लोगो : कक्षा 1 तथा 2 भाषा के लिए जानवरों के चित्र तथा गणित के लिए पक्षियों के चित्र निर्धारित हैं। इन चित्रों को 'लोगो ' कहा जाता है। लोगो समूह प्रबंधन में सहायक होता है।
- हच्चा अपनी गति से सीखता है।
- अध्यापक की पहुँच सहसे कमजोर बच्चे तक हो।
- जो बच्चा प्रतिदिन विद्यालय नहीं आ पाता, उसके लिए भी सीखने के उपयुक्त अवसर हैं। वह जहाँ से सीखना छोड़ता है, वहीं से सीखना प्रारंभ कर सकता है।
- बच्चे स्वयं अध्ययन करने हेतु प्रवृत्त रहते हैं।
- बच्चे आत्म-नियंत्रित, आत्मानुशासित एवं स्वयं व्यावहारिक होकर कक्षा - कक्ष में क्रियाकलापों को आयोजित करते हैं। क्रियाकलापों से महत्वपूर्ण बातों को वे खेल-खेल में सीख लेते हैं।
- बाल सरकार अध्यापक को विद्यालयी क्रियाकलापों के सम्पादन में सहयोग करती है।



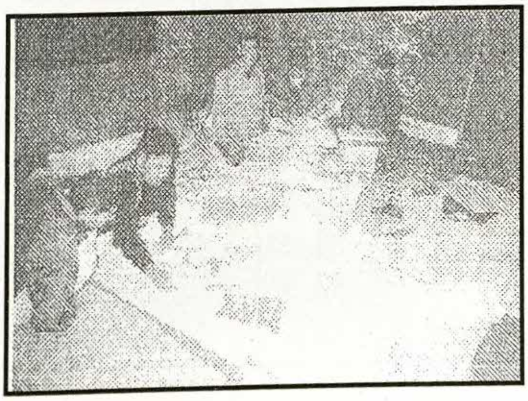
- बाल सहयोगी समूह सीखने की प्रक्रिया में बच्चों की सहायता करते हैं।
- मातृ समिति अध्यापक को स्थानीय विषयवस्तु के विकास में सहयोग देती है, जैसे - माता की कहानी, लोक कथाएँ, मिट्‌टी के खिलौनों का निर्माण आदि।
- विशेष आवश्यकता वाले बच्चों के लिए भी कक्षा का शैक्षिक वातावरण एवं शिक्षण-अधिगम प्रक्रिया तथा शिक्षण-अधिगम सामग्री उपयुक्त है।
- कक्षा-शिक्षण प्रक्रिया में अध्यापक सहायक की भूमिका का निर्वाह करता है। बच्चे सीखने के लिए स्वतः तत्पर एवं जिज्ञासु होते हैं।

6.0 कुंजापुरी मॉडल के प्रमुख घटक

(क) कक्षा - कक्ष का आंतरिक सौंदर्यीकरण

कुंजापुरी पैटर्न से आच्छादित विद्‌यालयों में प्रत्येक कक्षा जैसे - कक्षा-1 तथा 2 के बच्चों को बैठने के लिए व्यवस्थित किया गया है। आंतरिक सौंदर्यीकरण व्यवस्था के अंतर्गत कक्षा-कक्ष में निम्नलिखित तत्वों का समावेश किया गया हैः

- कक्षा-कक्ष में आंतरिक दीवार की हरी पट्‌टी पर वर्णमाला तथा गिनती लिखी हुई है। यह तकनीक बच्चों के लिए अनुकरण लेखन हेतु उपयुक्त है।
- हरी पट्‌टी के ऊपर कहानी चित्रण तथा पर्यावरण चित्रण किया गया है। चित्रण कक्षा-कक्ष को आकर्षक व अधिगम योग्य बनाता है।
- कक्षा-कक्ष में तीन अधिगम क्षेत्र (भाषा, गणित तथा पर्यावरणीय अध्ययन) प्रस्तुत किए गए हैं।
- तीनों अधिगम क्षेत्रों में विषयवार तथा कक्षावार कार्ड बॉक्स अर्थात् कंटेनर रखे गये हैं। कार्ड-कंटेनर में अधिगम अर्थात् लर्निंग कार्ड तथा गतिविधि कॉर्ड रखे जाते हैं।
- कार्ड कंटेनर के पास कक्षावार तथा विषयवार सीखने की चित्रयुक्त सीढ़ी दीवार पर बनी हैं।



- कक्षा-कक्ष में पूरे फर्श पर दरी बिछी हुई है तथा छत से लटकते हुए विभिन्न प्रकार के चित्र, जो बच्चों द्वारा तैयार किए गए हैं, बच्चों के मन को आकर्षित करते हैं।

कलर कोडिंग - कक्षा-कक्ष में कक्षा-1 के लिए सीखने की चित्रयुक्त सीढ़ी, लर्निंग कार्ड, समूह तश्तरी, गतिविधि कार्ड गुलाबी रंग में, कक्षा-2 के लिए पीले रंग में तथा पर्यावरणीय अध्ययन के लिए हरे रंग में हैं।

लोगो - इस पैटर्न के अंतर्गत समूह प्रबंधन में भच्चों के लिए स्वाभाविक खेल की क्रियाविधि स्थापित करने के लिए लोगो (पहचान चिह्न) निर्धारित किया गया है। कक्षा 1 तथा 2 के लिए जानवरों के चित्र तथा कक्षा 1 और 2 गणित के लिए पक्षियों के चित्र हैं। इन्हीं चित्रों को "लोगो" कहा जाता है।

(ख) सीखने की चित्रयुक्त सीढ़ी (Pictorial Ladder)

- यह अधिगम सामग्री का महत्वपूर्ण अंग है। चित्रयुक्त सीढ़ी कक्षावार तथा विषयवार पाठ्यक्रम को चित्रित करती है, जो बच्चों के लिए बोधगम्य है। कक्षा-1 तथा 2 की भाषा की चित्रयुक्त सीढ़ी पर जानवरों के चित्र तथा कक्षा - 1 से 2 गणित की चित्रयुक्त सीढ़ी पर पक्षियों के चित्र लगे हैं।

- **अधिगम कार्ड** - बच्चों के आनंददायी तरीके से सीखने के लिए उनके मन के अनुकूल स्व-अधिगम कार्ड बनाए गए हैं। ये लर्निंग कार्ड विभिन्न दक्षताओं तथा उप-दक्षताओं पर आधारित हैं। लर्निंग कार्डों का निर्माण वर्तमान में पाठ्यपुस्तकों को आधार बनाकर किया गया है। पाठ्यपुस्तक के प्रत्येक पाठ के पांच अधिगम बिंदुओं (परिचय, अभ्यास, पुनर्बलन, मूल्यांकन तथा संवर्द्धन) का विश्लेषण कर पांच प्रकार के लर्निंग कार्ड तैयार किए गए हैं।

1. **परिचय कार्ड** : यह अधिगम कार्ड, नवीन सम्बोधों तथा जानकारियों पर आधारित है। बच्चा अध्यापक की मदद से नवीन सम्बोधों या जानकारियों को प्राप्त करता है।

2. **अभ्यास कार्ड** : इन अधिगम कार्डों की विषय वस्तु प्रयत्न और भूल के सिद्धांत पर आधारित है। बच्चा स्वयं तथा साथियों की सहायता से अभ्यास कार्य करता है।

3. **पुनर्बलन कार्ड** : ये अधिगम कार्ड सम्बद्ध प्रतिक्रिया सिद्धांत पर आधारित हैं। इन कॉर्डों की विषयवस्तु में ऐसी परिस्थितियाँ एवं निर्देश दिए जाते हैं कि बच्चे अभ्यास द्वारा सही निष्कर्ष पर पहुंच सकें। निष्कर्ष तक पहुंचने में अध्यापक बच्चों की आंशिक मदद करता है।

4. मूल्यांकन कार्ड : इन अधिगम कार्डों की विषयवस्तु बच्चे ने 'कितना सीखा'? पर आधारित है। इन कार्डों को बच्चा स्वयं तथा साथियों की सहायता से हल करता है। कठिनाई उपस्थित होने पर अध्यापक उपचारात्मक तरीका अपनाता है।

5. संवर्द्धन कार्ड : ये अधिगम कार्ड 'सूझ' के सिद्धांत पर आधारित हैं। इसे स्वाधिगम कार्ड भी कहते हैं। इन अधिगम कार्डों को बच्चे स्वयं तथा साथियों की सहायता से पूरा करते हैं। इन कार्डों को पूरा करना ही बच्चों द्वारा निर्धारित दक्षताओं के विकास का परिचायक है।

अधिगम कार्ड विकसित करने के सिद्धांत

ये सिद्धांत निम्नलिखित हैं:

1. ज्ञात से अज्ञात की ओर।
2. संपूर्ण से खंड की ओर।

सभी अधिगम कार्डों को निर्धारित लोगो से आबद्ध किया गया है।

समूह तश्तरी:कक्षा शिक्षण प्रक्रिया का समूह में संचालन करने के लिए 6 समूह तश्तरियों का विकास किया गया है। समूह तश्तरी के एक तरफ निर्धारित जानवरों के चित्र तथा दूसरी तरफ निर्धारित पक्षियों के चित्र लगे हैं। भाषा शिक्षण के समय जानवरों के चित्रों वाली समूह तश्तरियों (परिचय, अभ्यास, पुनर्बलन, मूल्यांकन तथा संवर्द्धन) को क्रमशः क्लॉकवाइज फर्श पर बिछी दरी पर रख दिया जाता है। गणित शिक्षण के समय इन्हीं समूह तश्तरियों को उल्टा करके उसी स्थान पर रख दिया जाता है।

समूह प्रबंधनः कक्षा-शिक्षण प्रक्रिया का संचालन 6 समूहों (तैयारी समूह, परिचय समूह, अभ्यास समूह, पुनर्बलन समूह, मूल्यांकन समूह तथा संवर्द्धन समूह) में किया जाता है।

प्रक्रिया : बच्चे सर्वप्रथम अपनी कक्षा की सीखने की चित्रयुक्त सीढ़ी के लोगों को देखकर कार्ड कंटेनर में रखे अधिगम कार्डों के लोगो का मिलान करते हैं तथा अधिगम कार्ड के लोगो का मिलान समूह तश्तरी में लगे लोगों से करते हैं। सही लोगो का मिलान हो जाने पर बच्चे उसी समूह तश्तरी के पास बैठकर अधिगम कार्ड में वर्णित विषयवस्तु को सीखते हैं, उस पर आपस में चर्चा करते हैं तथा कठिनाई आने पर अध्यापक से सहायता प्राप्त करते हैं। यह प्रक्रिया बच्चों के लिए एक स्वाभाविक एवं सहज खेल है, जिसे करते समय वे उत्साहित, सक्रिय, भयरहित तथा जिज्ञासु रहते हैं।

समय प्रबंधन : कक्षा-शिक्षण प्रक्रिया के संचालन में समय प्रबंधन का बहुत अधिक महत्व है। कुंजापुरी मॉडल में समय-प्रबंधन का स्वरूप निम्नवत है:

भाषा (हिंदी) - 60 मिनट, गणित - 60 मिनट, तथा पर्यावरणीय अध्ययन - 60 मिनट।

उक्त निर्धारित समय में बच्चे प्रत्येक विषय में 30 मिनट मुख्य अधिगम कार्ड की विषयवस्तु सीखते हैं तथा शेष 30 मिनट गतिविधि कार्ड के साथ समूह में खेलते हैं।

समूहवार समय प्रबंधन के अंतर्गत कुल निर्धारित समय 60 मिनट है, जिसे - तैयारी समूह, परिचय समूह, अभ्यास समूह, पुनर्बलन समूह, मूल्यांकन समूह, तथा संवर्द्धन समूह में समान रूप से (अर्थात् प्रत्येक के लिए 20 मिनट) बाँटा जाता है।

पर्यावरणीय अध्ययन: पर्यावरणीय अध्ययन के लिए चर्चा-कार्ड फोल्डर के रूप में विकसित किया गया है। फोल्डर के प्रत्येक कार्ड पर एक तरफ चित्र है, जिस पर हच्चों का ध्यान केंद्रित होता है, तथा दूसरी तरफ अध्यापक के लिए चर्चा प्रश्न हैं। बच्चे चित्रों की सहायता से अध्यापक के साथ सामूहिक चर्चा करते हैं। चर्चा में कक्षा-1 तथा 2 के सभी बच्चे सम्मिलित रहते हैं।

"की" कार्ड तथा जोकर कार्ड क्रिया आधारित कार्ड हैं। इन कार्डों की सहायता से बच्चे खेल-खेल में स्थानीय एवं विशिष्ट वस्तुओं की पहचान, भिन्नता तथा वर्गीकरण करते हैं।

(ग) मातृ समिति : इस मॉडल के अंतर्गत बच्चों की माताओं तथा बहिनों को कक्षा-शिक्षण प्रक्रिया से जोड़ा गया है। मातृ समिति द्वारा विद्यालय में कुंजापुरी मॉडल से सुसज्जित कक्ष में गोष्ठी का आयोजन किया जाता है। गोष्ठी तथा कक्षा-शिक्षण प्रक्रिया साथ-साथ चलती हैं। माताएँ अधिगम कार्ड से समूह में सीखते हुए बच्चों के व्यवहार का अवलोकन करती हैं। गोष्ठी संचालन की प्रक्रिया निम्नवत होती है:

- माताओं द्वारा कक्षा-शिक्षण प्रक्रिया का अवलोकन।
- परिचय।
- बाल सरकार द्वारा माताओं का स्वागत।
- सीखने-सिखाने की प्रक्रिया पर प्रतिक्रिया।
- अध्यापक द्वारा कुंजारानी मॉडल का परिचय -
  - क) अधिगम क्षेत्र का परिचय।
  - ख) सीखने की चित्रयुक्त सीढ़ी का परिचय।

ग) अधिगम कार्डों का परिचय।

घ) समूह तश्तरियों का परिचय।

च) समूह में बैठने की प्रक्रिया का परिचय।

छ) स्थानीय लोक कथा, लोक गीत, लोक कहावत का लेखन व चर्चा तथा मिट्टी की गोली, गमला तथा खिलौनों का निर्माण।

ज) विद्यालय के सभी बच्चों द्वारा माताओं के साथ समूह गान -
हम होंगे कामयाब..........।

(घ) विद्यालय की बाल सरकारः

विद्यालय के क्रियाकलापों में अध्यापक की मदद के लिए तथा बच्चों में नेतृत्व, आत्मविश्वास, स्व-अनुशासन, स्व-नियंत्रण एवं स्वयं समस्या-समाधान की क्षमता विकसित करने के लिए कुंजारानी मॉडल के अंतर्गत विद्यालय में बाल सरकार होती है। बाल सरकार का गठन स्वतंत्र एवं प्रजातांत्रिक तरीके से किया जाता है। बाल सरकार में निम्नलिखत पद होते हैं:

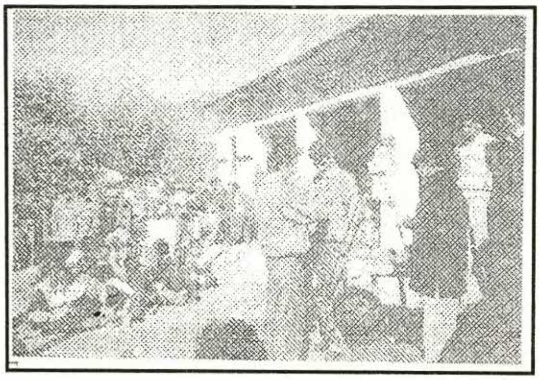
1. अध्यक्ष, 2. महामंत्री, 3. वंदना समिति प्रमुख एवं सदस्य, 4. स्वच्छता समिति प्रमुख एवं सदस्य, 5. जलपान समिति प्रमुख एवं सदस्य, 6. बागवानी समिति प्रमुख एवं सदस्य, 7. सांस्कृतिक समिति प्रमुख एवं सदस्य।

(च) बाल सहयोगी समूहः

इस मॉडल के अंतर्गत कक्षा 1 तथा 2 के बच्चों को सीखने में सहयोग देने के लिए तथा भाषायी, गणितीय एवं पर्यावरणीय सम्बोधों के विकास एवं उन्हें स्थाई बनाने के उद्देश्य से कक्षा - 3, 4 तथा 5 के बच्चों का एक सहयोगी समूह भनाया गया है। इस समूह के भच्चों को समूह आवंटित कर दिए जाते हैं। ये भच्चे भाषा, गणित तथा पर्यावरणीय अध्ययन के लिए निर्धारित कालांश में 10 - 10 मिनट के लिए अपने-अपने समूह में जाते हैं तथा कक्षा 1 एवं 2 के बच्चों की सीखने में मदद करते हैं। इस प्रक्रिया में जहाँ ये बच्चे अपने छोटे भाई-बहनों की सीखने में मदद् करते हैं, वही स्वंय नये-नये सम्बोधों तथा कमजोर सम्बोधों एवं जानकारयों को सुस्पष्ट कर लेते है।

7.0 कुंजापुरी मॉडल का आच्छादन

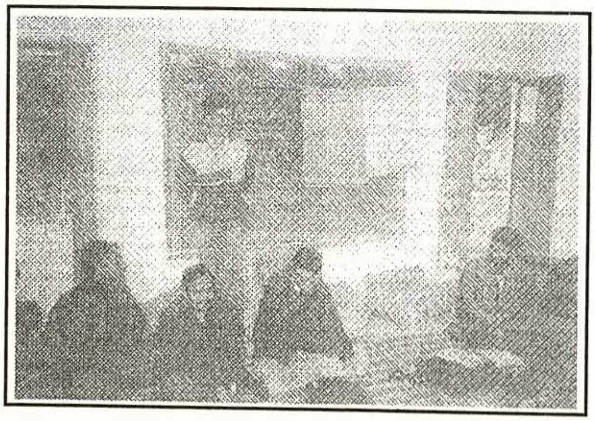
उत्तरांचल राज्य में जनपद पिथौरागढ के मुनस्यारी विकास खण्ड में 10, जनपद उत्तरकाशी के मोरी विकास खण्ड में 10 तथा टिहरी गढ़वाल के भिलंगना विकास खंड में 11 परिषदीय प्राथमिक विद्यालयों को राज्य के **प्रतिदर्श** के रूप में चयनित कर कुंजापुरी मॉडल का विकास एवं आच्छादन किया गया है। ये विद्यालय प्रोजेक्ट स्कूल के नाम से जाने जाते हैं। प्रोजेक्ट स्कूल उत्तरांचल राज्य के उक्त जनपदों में सुदूर, पिछड़े एवं जनजातीय पर्वतीय क्षेत्र में स्थित हैं। इस समय उत्तरांचल के तीन जनपदों - पिथौरागढ, टिहरी तथा उत्तरकाशी में क्रमशः 10, 11, तथा 10 विद्यालयों में कुंजापुरी मॉडल के अंतर्गत शिक्षा दी जा रही है।



8.0 कुंजापुरी मॉडल पर प्रतिक्रिया

इस प्रतिक्रिया में जनप्रतिनिधियों, अध्यापकों, मातृ समिति के सदस्यों, शिक्षा विभाग के अधिकारियों एवं अन्य परियोजना कर्मियों एवं अभिकर्मियों ने भाग लिया। इस प्रतिक्रिया के माध्यम से कुंजापुरी मॉडल की निम्नलिखित विशेषताओं पर स्पष्ट मतैक्य रहाः

- बच्चे कक्षा-शिक्षण प्रक्रिया में भयरहित हैं।
- समूह प्रबंधन बच्चों के स्वाभाविक खेल पर आधारित है। फलतः बच्चे खेल-खेल में अपने-अपने समूह में व्यवस्थित हो जाते हैं तथा समूह बदलते रहते हैं।
- अधिगम कार्ड रंगीन व चित्रात्मक होने के कारण बच्चों की रुचि एवं जिज्ञासा कार्डों में वर्णित विषयवस्तु को सीखने में बनी रहती. है।



- बच्चे अपनी गति से सीखते हैं।
- बच्चों की उपस्थिति नियमित होने लगी है।
- बच्चों में आपसी स्पर्धा दिखाई दे रही है।
- प्रत्येक बच्चे को पता रहता है कि उसने कितना सीख लिया है।
- बच्चे अपना मूल्यांकन स्वयं करते हैं।
- विशेष आवश्यकता वाले बच्चों के लिए कक्षा-कक्ष का वातावरण, कक्षा-शिक्षण प्रक्रिया एवं अधिगम कार्ड अत्यंत सुविधाजनक हैं।
- बच्चे गतिविधि कार्डों के साथ खेल-खेल में विषयवस्तु की अवधारणा व सम्बोधों को भी सीख रहे हैं।

- बच्चे सीखने की सामग्री अधिगम क्षेत्र से स्वयं प्राप्त करते हैं तथा स्वयं सीखने/खेलने के बाद उसी स्थान पर रख देते हैं।
- अधिगम कार्ड में वर्णित विषयवस्तु को सीखने में आ रही कठिनाई को दूर करने के लिए बच्चे स्वयं अध्यापक से पूछते हैं।
- बच्चों में स्व-प्रभंधन, स्व-अनुशासन, स्व-नियंत्रण तथा समूह में कार्य करने की भावना का विकास हो रहा है।
- अध्यापक अधिगम कार्डों के विकास में अपनी मौलिकता एवं रचनात्मक क्षमता का प्रदर्शन एवं विकास कर रहे हैं।
- अध्यापक बच्चों के साथ समूह में बैठकर बच्चों को सीखने में आ रही कठिनाइयों को दूर करते हैं।
- बहुकक्षा शिक्षण प्रक्रिया के अंतर्गत विकसित इस नई विधा से कक्षा शिक्षण प्रक्रिया की सरलता एवं बच्चों में सक्रिय अधिगम का परिचय मिलता है।
- प्रोजेक्ट स्कूल के अलावा अन्य विद्यालयों के अध्यापक भी इस नवाचारी विधा को प्रोजेक्ट स्कूल से सीख कर अपने विद्यालय में लागू कर रहे हैं।
- अध्यापक इस नवीन विधा को प्राथमिक शिक्षा के क्षेत्र में गुणवत्ता समुन्नयन की दिशा में एक परिवर्तकारी कदम के रूप में स्वीकार कर रहे हैं।
- इस मॉडल के अंतर्गत कक्षा-शिक्षण प्रक्रिया बाल केंद्रित एवं क्रिया प्रधान बन गई है।
- मातृ समिति विद्यालय में मासिक बैठक का आयोजन करती है। बैठक में अधिगम कार्डों का विकास, स्थानीय विषयवस्तु का विकास जैसे - माता की कहानी तथा बच्चों के साथ मिट्टी की गोलियां, गमले, खिलौने आदि के निर्माण का कार्य होता है।
- ग्राम शिक्षा समिति तथा अन्य प्रतिनिधि इस विधा के प्रति आकर्षित हैं। उनके द्वारा विद्यालयों में अधिक साधन-सुविधाएँ जुटाने यथा - चहारदीवारी, पेयजल, बैठने के लिए दरी आदि की व्यवस्था की जा रही है।
- विद्यालय की बाल सरकार विद्यालय की विभिन्न गतिविधियों तथा - प्रार्थना सभा, विद्यालय सौंदर्यीकरण, बागवानी, पेयजल, सांस्कृतिक कार्यक्रम, मातृ समिति की बैठक का आयोजन तथा विद्यालय संचालन में अपने अध्यापक की मदद कर रही है।
- बाल सहयोगी समूह के सदस्य कक्षा-शिक्षण प्रक्रिया में अपने छोटे भाई-बहिनों को सीखने में मदद कर रहे हैं।

ये सभी प्रतिक्रियाएँ सकारात्मक हैं तथा इन्हें कुंजापुरी मॉडल की प्रभावशीलता का प्रमाण माना जा सकता है।

क्र. स.	क्रियाकलाप का शीर्षक	स्थल	अवधि (तिथि)	निष्कर्ष
1.	राज्य स्तरीय संगोष्ठी	फर्गर जूनियर हाई स्कूल, देहरादून	6 सितम्बर, 2002	अभिनव प्रयोग की सीमा 1. निर्धारित पाठयक्रम 2. निर्धारित पाठयपुस्तक 3. कक्षा 1 और 2 4. सीखने–सीखाने की प्रक्रिया में परिवर्तन
2.	जनपद टिहरी में कक्षा शिक्षण	विकास खंड़ भिलंगाना	25 सितम्बरए 2002 से 20 अक्तूबर, 2002 तक	1. सीखने–सीखाने की प्रक्रिया में परिवर्तन
3.	क्षमता विकास कार्यशाला	डायट, टिहरी	21, 22 तथा 23 अक्तूबर, 2002	1. संदर्भ समूह का गठन 2. प्रायोगिक अनुसंधान हेतु अध्यापकों की छः सदस्यीय टीम का गठन
4.	प्रायोगिक अनुसंधान (कुंजापूरी मॉडल का विकास)	प्राथमिक वि, आर्स, नरेंद्र नगर, टिहरी गढ़वाल	27 अक्तूबर, 02 से 4 जनवरी, 2003 तक	1. ऋषिवैली पैटर्न का प्रशासन 2. कुंजापूरी मॉडल का विकास व आच्छादन।
5.	अधिगम सामग्री विकास एवं अनुप्रयोग कार्यशाला	राजकीय इंटर कॉलेज, देवलधार, नरेंद्र नगर, टिहरी गढ़वाल	4 जून, 03 से 8 जून, 2003 तक	1. कक्षा शिक्षण प्रक्रिया का अवलोकन। 2. अधिगम सामग्री का विकास 3. समूह प्रबंधन तथा समय प्रबंधन का प्रयोग।
6.	अधिगम सामग्री विकास एवं अनुप्रयोग कार्यशाला	डायट, डीडीहाट	7 अप्रैल, 03 से 13 अप्रैल, 03 तक	1. अधिगम सामग्री का विकास 2. कक्षा–शिक्षण प्रक्रिया में लर्निंग कार्डों, समूह प्रबंधन तथा समय प्रबंधन का प्रयोग।
7.	अनुप्रयोग एवं अनुश्रवण कार्यशाला	विकास खंड, भिलंगना (प्रा.वि, मुयाल गॉव)	3 मई, 03 से 18 मई, 03 तक	1. लर्निंग कार्डों तथा गतिविधि कार्डों का विकास। 2. सीखने का चित्रयुक्त सीढ़ी समूह तश्तरियों का विकास। 3. विकसित सामग्री का कक्षा–शिक्षण प्रक्रिया में अनुप्रयोग।
8.	अनुप्रयोग एवं अनुश्रवण कार्यशाला	विकास खंड मनुस्यारी (प्रा.वि. सुरिंग)	23 मई, 03 से 30 मई, 03 तक	1. लर्निंग कार्डों तथा गतिविधि कार्डों का विकास। 2. सीखने की चित्रयुक्त सीढ़ी का परिशोधन। 3. समूह तश्तरियों का परिशोधन। 4. कक्षा अधिगम प्रक्रिया में विकसित अधिगम सामग्री का अनुप्रयोग।

9.	अधिगम सामग्री अभिलेखीकरण	विकास खंड नरेंद्र नगर	5 जुलाई, 03 से 5 अगस्त, 2003 तक	1. प्रयोग के लिए गए लर्निंग तथा गतिविधि कार्डों का मॉडयूल के रुप में संकलन।
10.	अनुप्रयोग एवं अनुश्रवण कार्यशाला एवं कुंजापुरी मॉडल का विकास	वि.आर.सी. मोरी, प्राथमिक विद्या, मोरी, उत्तरकाशी	7 अगस्त, 03 से 16 अगस्त 2003 तक	1. कक्षा–कक्ष का आंतरिक भौतिक विकास एवं सौंदर्यीकरण 2. लर्निंग कार्डो तथा गतिविधि कार्डों का विकास। 3. सीखने की चित्रयुक्त सीढ़ी तथा समूह तश्तरियों का विकास। 4. समूह प्रबंधन, समय प्रबंधन तथा अधिगम सामग्री का कक्षा शिक्षण प्रक्रिया में अनुप्रयोग। 5. जिला संदर्भ समूह का विकास।
1	अनुप्रयोग एवं अनुश्रवण कार्यशाला एवं विकास मॉडल का विकास	विकास खंड मुनस्यारी (पिथौरागढ़) प्राथमिक विद्यालय देवीकूना	3 सितम्बर, 03 से 10 सितम्बर, 2003 तक	1. कक्षा–कक्ष का आंतरिक भौतिक विकास एवं सौंदर्यीकरण 2. लर्निंग कार्डो तथा गतिविधि कार्डों का विकास। 3. सीखने की चित्रयुक्त सीढ़ी तथा समूह तश्तरियों का विकास। 4. समूह प्रबंधन, समय प्रबंधन तथा अधिगम सामग्री का कक्षा शिक्षण प्रक्रिया में अनुप्रयोग। 5. जिला संदर्भ समूह का विकास।
12.	अधिगम सामग्री पुनरावलोकन/ परिशोधन	विकास खंड भिलंगना (टि.ग.) तथा	15 अक्तूबर, 03 से 23 सितम्बर, 2003 तक	1. लर्निंग कार्डों का कक्षा–शिक्षण प्रक्रिया में परीक्षण। 2. लर्निंग कार्डों का परिशोधन।

TEACHING MULTI-LEVEL & MULTI-GRADES IN PRIMARY SCHOOL : AN INNOVATIVE EXPERIMENT

प्राथमिक विद्यालयों में बहुकक्षा एवं बहुस्तरीय शिक्षण - नवाचारात्मक प्रयोग

Laxmi Narain Acharya

लक्ष्मीनारायण आचार्य

Abstract

Multi-grade teaching in primary schools is a reality in our country. In spite of the largely justified criticism from various quarters, it continues to exist for the simple reason that the required number of teachers cannot be trained in a year. Multi-grade teaching continues even today, but mostly in rural schools. These schools will not get the required number of teachers in the near future. However, this bold innovative experiment in district Shajapur, Madhya Pradesh, offers hope. This innovative experiment was conducted in two schools, one under the Education Guarantee Scheme, in two villages on students of Grades I-V. Fifteen above average students were identified and given three-day intensive training in organizing post-teaching practice sessions and providing recapitulation through a variety of activities. All classroom teaching was carried out by the teacher in each school. These 'monitors' provided effective 'peer-guidance' as facilitators and helped other students perform better. Pretest scores in terms of grades 'A' through 'D' were treated as the reference baseline. Students' performance at the end of each subsequent quarter during the session was compared with their baseline performance. The results were found to be very impressive. During the experiment the 'monitors' developed interest in teaching and grew in confidence

1.0 पृष्ठभूमि

शाजापुर जिला प्रदेश की हृदयस्थली मालवांचल मुम्बई-आगरा राज मार्ग पर अवस्थित है। यह जिला ग्रामीण क्षेत्र में बसा है। इसकी 82 प्रतिशत क्षेत्र ग्रामीण बसावट है। इसमें 1178 प्राथमिक शालाएँ तथा 350 शिक्षा गारंटी शालाएँ हैं। इसमें 1090 शालाएँ दो या तीन शिक्षकीय एवं 88 एक शिक्षकीय हैं। 283 शिक्षा गारंटी शालाएँ एक शिक्षकीय हैं एवं 67 दो शिक्षकीय हैं। अच्छे शिक्षण के लिए एक शिक्षक द्वारा एक कक्षा का ही शिक्षण सफलतापूर्वक किया जा सकता है। किंतु इतने शिक्षकों की पूर्ति किया जाना असंभव है। इसी समस्या के समाधान के लिए इस प्रोजेक्ट पर अध्ययन संपूर्ण प्रदेश के डाइट में किया गया। जिला शिक्षा एवं प्रशिक्षण संस्थान शाजापुर द्वारा इस नवाचार को मूर्त रूप देने के लिए प्रयास किया गया इन प्रयासों में राज्य शिक्षा केंद्र म.प्र. द्वारा मुक्त हस्त से सहयोग प्रदान किया गया। नवाचार का मूल बिंदु शिक्षक एवं शिक्षार्थी के साथ-साथ शिक्षण स्थल से भी जुड़ा हुआ था। लक्ष्य था संपूर्ण जिले में बहुकक्षा शिक्षण एवं बहुस्तरीय शिक्षण के परिणाम जानना। अर्थात् एक या दो शिक्षकों द्वारा कक्षा 1 से 5 तक प्रत्येक कक्षा तथा कक्षा में प्रत्येक स्तर के विद्यार्थियों का शिक्षण कार्य देखना एवं उसमें आने वाली बाधाओं को दूर कर उत्तम गुणात्मक परिणाम प्राप्त करना।

संपूर्ण [illegible] का इस नवाचार के लिए परीक्षण व्यापक संसाधनों एवं लम्बी अवधि के पश्चात् संभव होगा। अतः [illegible] परिणामों की आशा में जिले के शाजापुर विकास खंड से ग्राम बेरछी के प्राथमिक विद्यालय तथा [illegible] मालीखेड़ी के शिक्षा गारंटी केंद्र को इस हेतु चुना गया। ग्राम बेरछी में 132 छात्र-छात्राएँ शाला में अध्ययनरत हैं। यहाँ एक सहायक शिक्षक एवं एक शिक्षाकर्मी ही कार्यरत है। इस ग्राम में अनुसूचित जाति [illegible] परिवारों की बहुलता है। शिक्षा गारंटी शाला मालीखेड़ी की नवीन आवास कालोनी में स्थित है। इस [illegible] की आबादी लगभग 250 है। यहाँ छात्र संख्या 41 है जिसमें अनुसूचित जाति के 17 तथा पिछड़े [illegible] के 24 छात्र-छात्राएँ अध्ययनरत हैं। केवल एक गुरुजी कार्यरत हैं। शिक्षण के लिए केवल दो कक्ष [illegible] बहुकक्षा तथा बहुस्तरीय शिक्षण का परीक्षण करने के लिए दोनों शालाओं को अध्ययन हेतु चुना गया। [illegible] दोनों ग्रामों में प्रायोगिक अध्ययन हेतु जिला शिक्षा एवं प्रशिक्षण संस्थान की ओर से लेखक तथा [illegible] शिक्षा केंद्र भोपाल की ओर से नोडल अधिकारी के रूप में एक व्याख्याता को नियुक्त किया गया।

अध्ययन [illegible] विस्तृत योजना के चार चरण हैं। सर्वप्रथम क्षेत्र चयन, तत्पश्चात् आलोच्य समस्या का अनुसंधान, तृतीय [illegible] में समस्या समाधान के क्रमबद्ध उपाय, एवं अंतिम चरण में मूल्यांकन का निर्धारण किया गया। [illegible] हेतु क्षेत्र चयन का कार्य प्रारंभिक चरण के रूप में हो चुका था। प्रथम एवं द्वितीय चरणों के [illegible] अध्ययन में सहयोगी मानवीय तथा मानवेतर संसाधनों की चर्चा आवश्यक है।

2.0 [illegible] के संसाधन

इस [illegible] गिक अध्ययन हेतु वित्तीय संसाधन जुटाने का संपूर्ण दायित्व राज्य शिक्षा केंद्र भोपाल ने वहन किया। [illegible] मानवीय संसाधन के अंतर्गत राज्य शिक्षा केंद्र भोपाल से ओ.आई.सी. इस अध्ययन की गतिविधि में [illegible] रही। साथ ही राज्य शिक्षा केंद्र से नियुक्त व्याख्याता नोडल व्यक्ति के रूप में अतिरिक्त प्रभार लेकर निरंतर अध्ययन को गति देते रहे। जिला शिक्षा एवं प्रशिक्षण संस्थान के समस्त व्याख्यातागण, जिले के [illegible] अंचलों के विशेष रूप से आमंत्रित तीन प्रतिभाशाली शिक्षकों का वीडियो रिकार्डिंग एवं आलोच्य विद्यालय के शिक्षक तथा ई.जी.एस मालीखेड़ी के गुरुजी के साथ-साथ मानवीय संसाधनों में इन विद्यालयों में पढ़ने वाले छात्र-छात्राएँ तथा निरंतर सहयोग देने वाले ग्रामीणजनों को भी सम्मिलित करना वांछनीय है।

3.0 समस्या का विश्लेषण तथा समाधान का स्वरूप

एक या दो शिक्षकों द्वारा 1 से 5 तक की कक्षाओं का सुचारु रूप से अध्ययन-अध्यापन, प्रार्थना, खेल, पी.टी., शाला भवन का अभाव एवं समस्त शासकीय जानकारियों को तैयार करना असंभव सी बात लगती है। ग्रामीण क्षेत्र के छात्र भी निष्क्रिय एवं अनियमित होते हैं। ऐसी विषम स्थिति में यह कार्य और भी कठिन एवं असंभव सा लगता है। इन समस्त कार्यों के संचालन के लिए छात्र एवं शिक्षक के मध्य सक्रिय कड़ी की आवश्यकता महसूस की गई। वह कड़ी क्लास मॉनीटर को प्रशिक्षित करके प्राप्त करने का विचार आया। इसी विचार को मूर्त रूप देने के लिए अनुसंधान कार्य प्रारंभ किया गया। उपर्युक्त समस्त संसाधनों से पूर्णतः सुसज्जित होकर चयनित क्षेत्रों में समस्या का स्वरूप खोजा गया। इस हेतु नोडल व्यक्ति ने स्थानीय शिक्षकों-जनशिक्षकों के सहयोग से अगस्त 2002 के प्रथम सप्ताह में दोनों स्थानों पर छात्रों की गुणात्मक स्थिति आंकने के लिए आधारभूत पूर्व परीक्षण आयोजित किया। इस परीक्षण में प्रा.वि. बरेछी के 132 छात्र-छात्राओं को सम्मिलित किया गया तथा शिक्षा गारंटी केंद्र मालीखेड़ी के 39 छात्र-छात्राओं ने उस परीक्षा में भाग लिया। इस पूर्व परीक्षण के परिणाम आशाजनक नहीं थे।

इन परिणामों में प्रा.वि. बेरछी के कक्षा एक के 19 छात्रों में से सभी बालक डी ग्रेड में आए तथा कक्षा 2 के 35 बालकों में से 23 डी ग्रेड में, 6 बालक सी ग्रेड में तथा ४ हालक भी ग्रेड में आए। केवल २ छात्र ए ग्रेड में आ सके। कक्षा 3 के 32 हालकों के ग्रेड A (1), B (1), C (14) और D (14) तक ही सीमित रहे। कक्षा 4 के 24 बालकों में से 11 बालक सी ग्रेड में और केवल 1-1 छात्र [illegible] एवं A ग्रेड में आ सके। इसी प्रकार कक्षा 5 के 22 छात्रों में से 13 छात्र D ग्रेड में, 5 छात्र C ग्रेड में आ सके तथा A ग्रेड में कोई भी नहीं आ सका।

इसी प्रकार ईजीएस मालीखेड़ी में कक्षा 1 के 13 सम्मिलित बालकों में सभी डी ग्रेड में आए। कक्षा 2 के 9 सम्मिलित बालकों में से 4 डी ग्रेड में तथा 5 सी ग्रेड में आये। कक्षा 3 के 5 सम्मिलित बालकों में से 2 डी ग्रेड तथा 3 सी ग्रेड में आये। कक्षा 4 के 8 सम्मिलित बालकों में से 3 डी ग्रेड में तथा 5 सी ग्रेड में आए। इसी प्रकार कक्षा 5 में 4 सम्मिलित बालकों में से 1 डी ग्रेड में तथा 3 सी ग्रेड में आए। आधारभूत परीक्षण में परिणाम निःसंदेह एक ज्वलंत समस्या को स्वरूप दे रहे थे। इस परीक्षण में छात्रों से उनके नियमित पाठ्यक्रम की जानकारी तथा कुछ नैतिक प्रश्न पूछे गए। परीक्षण में शिक्षकों के अनथक आत्मीय प्रयासों के उपरांत भी परीक्षा के परिणाम छात्रों की न्यून गुणवत्ता को रेखांकित कर रहे थे। समस्या का स्वरूप उभर चुका था। अब आवश्यकता की निदानात्मक जानकारियों के विश्लेषण एवं चिंतन के पश्चात् अनुसंधानकर्ताओं ने निम्नांकित तथ्य खोजे:

1. छात्रों का स्तरानुसार वर्गीकरण नहीं किया गया।
2. अधिक कक्षा और कम शिक्षक होने से शिक्षक-छात्र संख्यानुपात असंतुलित रहा।
3. कक्षा में बैठक व्यवस्था शिक्षण के उपयुक्त नहीं थी।
4. शिक्षण की योग्यता का संपूर्ण लाभ किसी एक कक्षा को न मिलकर विभिन्न कक्षाओं में बिखर जाता था।
5. भवन एवं अन्य वित्तीय संसाधनों का अभाव था।
6. छात्रों में स्वअधिगम की प्रवृत्ति का अभाव था।
7. पाठ्येतर गतिविधियों के माध्यम से शाला पर्यावरण का परिष्कार नहीं किया गया।
8. प्रार्थना, ध्यान एवं नैतिक शिक्षा से प्राप्त होने वाली एकाग्रता का छात्रों में अभाव रहा।
9. रोचक क्रीड़ा गतिविधियों तथा व्यायाम जिससे छात्र स्फूर्ति अनुभव करते हैंड़ का अभाव था।
10. छात्रों के बीच अध्ययन संभंधी पारस्परिक शैक्षिक आदान-प्रदान का अभाव रहा।

उपर्युक्त तथ्यों के प्रकाश में समस्या का स्पष्ट चित्र उभर आया कि बहुकक्षा एवं बहुस्तरीय शिक्षण में छात्र गुणात्मकता प्राप्त नहीं कर पा रहे हैं। इसके मूल में शिक्षकों एवं छात्रों के बीच संतुलित समझ का न होना मुख्य कारण था। वस्तुतः बहुकक्षा एवं बहुस्तरीय शिक्षण में छात्र तथा शिक्षक के मध्य कतिपय प्रतिभाशाली छात्रों के रूप में एक और तत्व का सक्रिय होना आवश्यक है जिसे हम प्रचलित शब्दावली में "मानीटर" कह सकते हैं। यह मानीटर सामान्य छात्रों से भिन्न अपनी प्रतिभा के कारण शिक्षक के अधिक निकट होने से शिक्षण प्रक्रिया में शिक्षक का सहयोगी हो सकता है। किंतु ऐसे छात्रों को पहचान कर चुनना तथा उन्हें शिक्षक के साथ शिक्षण का प्रशिक्षण देना प्रथमतः आवश्यक है। यहाँ एक स्थिति के लिए विशेष रूप से सावधान रहना होगा कि प्रशिक्षण में छात्रों को मानीटर बनाकर प्रस्तुत किया जाए। उन्हें पूर्ण शिक्षक मानकर अनावश्यक मृगतृष्णा में उलझाया न जाए अर्थात् संपूर्ण पाठ्यक्रम शिक्षक स्वयं ही संप्रेषित करें; मानीटर केवल शिक्षक के निर्देश पर पूर्व में पढ़ाई गई विषयवस्तु की पुनरावृत्ति, दृढ़ीकरण एवं पर्याप्त अभ्यास के कार्य में सहयोगी हो।

4.0 क्रियान्वयन

शिक्ष वं छात्रों के मध्य मानीटर नाम के इस नये तत्व की पूर्ण संकल्पना लेकर एक निश्चित योजना के अ अध्ययन हेतु चयनित विद्यालयों में इस काल्पनिक प्रयोग को साकार स्वरूप प्रदान किया गया। स्वप्न सजीव क्रियान्वयन की प्रक्रिया में सर्वप्रथम दोनों शालाओं के छात्रों में से 15 प्रतिभाशाली छात्रों का किया गया। इसमें प्रा.वि. बेरछी से कक्षा 5 से 4 कक्षा 4 से 4 तथा कक्षा 3 से 2 इस प्रकार कुल छात्र-छात्राएँ एवं ईजीएस मालीखेड़ी से कक्षा 5 से 2, कक्षा 4 से 2 तथा कक्षा 3 से 1 कुल 5 छ त्राओं का चयन किया गया। इन 15 छात्रों को उनके शिक्षकों के साथ ईजीएस मालीखेड़ी में जिल क्षा एवं प्रशिक्षण संस्थान के व्याख्याताओं तथा अन्य विशेषज्ञ शिक्षकों द्वारा त्रिदिवसीय सघन प्रशिक्षण दिया ा। इस प्रशिक्षण के प्रमुख बिंदु नवाचार से संबंधित विभिन्न शिक्षण प्रणालियाँ थीं जैसे -

1. यक एवं आकर्षक प्रार्थना, राष्ट्रगीत, राष्ट्रगान, सर्वधर्म प्रार्थना, मूल्य गीत, ध्यान एवं मौन।
2. षा, गणित, पर्यावरण, अंग्रेजी राष्ट्रगीत आदि विषयों के पाठ्यक्रम का नवीन सहायक सामग्री के ध्यम से संप्रेषण करना।
3. हानी, गीत, चित्र एवं खेल गतिविधियों के माध्यम से शिक्षण ।
4. कक्षा शिक्षण की स्थिति में बैठक व्यवस्था।
5. कक्षा शिक्षण स्थिति में अभ्यास पुस्तिका एवं श्याम पट्ट का प्रयोग।
6. ा में शिक्षक की उपस्थिति तथा अनुपस्थिति में मानीटर की भूमिका।
7. कक्षा शिक्षण में कक्षावार, विषयवार, स्तरानुसार समूह रचना।
8. तृत्व एवं नेतृत्व कौशल का विकास।
9. कक्षा शिक्षण में मध्यावकाश के पश्चात् शिक्षक रहित कक्षाओं में मानीटर द्वारा समूह नियंत्रण एवं विधि आधारित शिक्षण्।
10. ीटर द्वारा शिक्षण कार्य की पुनरावृत्ति, दृढ़ीकरण एवं अभ्यास कार्य।

यह प्र क्षण इस नवाचार के लिए मुख्य आधार का कार्य करने वाला था। इसकी सफलता पर ही नवाचार तथा ुसंधान कार्य की सफलता निर्भर थी। अतः इस प्रशिक्षण को विभिन्न संसाधनों द्वारा अधिकाधिक प्रभावी, रोचक और स्थायी बनाने का प्रयास किया गया। जिले में चुने हुए शिक्षक प्रशिक्षकों को इस प्रशिक्षण में आमंत्रित किया गया जो अपने-अपने प्रशिक्षण संस्थानों सहित इस त्रिदिवसीय प्रशिक्षण में उपस्थित रहे। इन विशेषज्ञों द्वारा निर्मित विभिन्न सहायक सामग्री अंकराज, मैजिक स्लेट, संशोधित अबेकस आदि सामग्रियों के माध्यम से विद्यार्थियों को विद्यार्थी जीवन में ही शिक्षण कौशल एवं कक्षा नियंत्रण के सूत्र भली-भांति समझाए गए। प्रशिक्षण के अंतिम दिवस में मानीटर छात्रों को कक्षा नियंत्रण एवं अध्यापन के अवसर भी दिए गए। वस्तुतः इस अनुसंधान प्रक्रिया में सबसे महत्वपूर्ण चरण था ग्रामीण परिवेश के नितांत संकोची भोले-भाले अबोध छात्रों द्वारा सीधे कक्षा नियंत्रण का दायित्व निर्वहन करना। जिस पाठ्यवस्तु को पढ़कर उन्हें स्वयं परीक्षा देनी है वही पाठ्यवस्तु अपने साथियों को सम्प्रेषित कर सकेंगे, ऐसी कल्पना इस प्रशिक्षण से जुड़ी हुई थी। किंतु सारे अवरोधों को हटाकर पूरे मन से निष्ठापूर्वक कार्य करने पर असंभव भी संभव हो जाता है। प्रशिक्षण पूर्णतः सफल रहा। इस प्रशिक्षण की सफलता को अनेक बार अनेक माध्यमों से जांचा परखा गया। इस प्रशिक्षण के पश्चात् मानीटरों को प्रथमतः शिक्षक की उपस्थिति में निचली कक्षाओं के अध्यापन हेतु निर्दिष्ट किया गया । इस कार्य के लिए मध्यावकाश के पश्चात का समय चुना गया। मध्यावकाश से पूर्व शिक्षक द्वारा कक्षा नियंत्रित करके जिस पाठ्यवस्तु को पढ़ाया जाता उसी पाठ्यवस्तु को अथवा पूर्वपठित पाठ्यवस्तु को प्रशिक्षित मानीटरों द्वारा समूह में पढ़ाया जाता। प्रारंभ में मानीटर के शिक्षण कार्य पर शिक्षकों द्वारा दृष्टि रखी गई किंतु शीघ्र ही यह पाया गया कि मानीटर शिक्षक की अनुपस्थिति में भी शिक्षण कर सकते हैं।

मानीटर द्वारा शिक्षण के साथ कतिपय सह-शिक्षण गतिविधियाँ भी करायी गयीं। इनके अंतर्गत इन्हीं मानीटरों द्वारा कक्षावार समूह, समान बौद्धिक स्तरीय समूह, तथा भिन्न कक्षाओं में भिन्न स्तरों के छात्र समूह का गठन किया गया। विभिन्न समूहों में पृथक-पृथक शैक्षिक गतिविधियाँ मानीटरों द्वारा संपन्न की ग

ये गतिविधियाँ कक्षा के अंदर तथा कक्षा के बाहर भी छात्रों को जोड़ने में सफल रहीं। साथ ही इन गतिविधियों से शैक्षणिक गुणवत्ता बढ़ी तथा बालकों के सर्वांगीण विकास की दृष्टि से भी ये सार्थक रहीं। इन गतिविधियों में प्रमुख थीं समूह में विद्यार्थियों द्वारा गतिविधि, एक समूह की दूसरे समूह से गतिविधि, शिक्षक के निर्देश तथा मानीटर के नेतृत्व में सभी समूहों की सामूहिक गतिविधि। इन गतिविधियों में मानीटर के अतिरिक्त समूह के छात्र भी परस्पर सहयोग करते रहे। वे पाठ्यांतर्गत कठिनाइयों का चिंतन करते तथा कठिन अंशों पर सामूहिक चर्चा के पश्चात् शिक्षक का मार्गदर्शन प्राप्त करते रहे। इस प्रकार समूह निर्माण एवं मानीटर प्रशिक्षण से दोनों चयनित विद्यालयों में छात्रों का उत्साह बढ़ा। शैक्षणिक गतिविधियाँ निरंतर हुई। उपस्थिति में वृद्धि हुई। पाँच कक्षाओं के शिक्षण कार्य तथा अन्य कार्यालयीन कार्यों में उलझे हुए शिक्षकों को इस पद्धति द्वारा संतुष्टि एवं राहत प्राप्त हुई। चयनित दोनों विद्यालयों में मानीटरों के सहयोग से कक्षा में निम्नांकित शैक्षणिक कार्य संपन्न हुएः

1. सस्वर वाचन एवं श्रुत लेखन;
2. हिंदी एवं अंग्रेजी में अनुसरण लेखन;
3. गिनती एवं पहाड़े का अभ्यास;
4. अभ्यास कार्य का अवलोकन;
5. श्यामपट्ट का प्रयोग;
6. सहायक शैक्षिक सामग्री से गतिविधियाँ;
7. कमजोर छात्रों की पहचान एवं उनका उपचारात्मक शिक्षण;
8. शनिवारीय बालसभा का आयोजन;
9. खेल, पी.टी., साँप सीढ़ी आदि गतिविधियाँ; तथा
10. शाला प्रारंभ तथा विसर्जन के समय प्रार्थना एवं ध्यान।

उपरोक्त बिंदु उस सुहढ़ नींव के पत्थर हैं जो इस शोध यात्रा को सफलता के शिखर पर पहुँचने का संकेत करते हैं। यद्यपि यह शोध पूर्णतः सफल है तथापि इसकी सफलता को प्रमाणित करने के लिए विश्वसनीय मूल्यांकन की आवश्यकता थी।

5.0 प्रयोग का मूल्यांकनः दोनों शालाओं का उपलब्धि विश्लेषण

अनुसंधान यात्रा का यह चतुर्थ चरण इसकी सफलता का घोषणा पत्र बन गया। स्वयं शोधकर्ता भी इन चकाचौंध कर देने वाले परिणामों को देखकर स्तब्ध् हैं।

दोनों चयनित क्षेत्रों में पृथक-पृथक मूल्यांकन किया गया। इस मूल्यांकन के चार आयाम थे। प्रथम आयाम था - आधारभूत पूर्व प्रशिक्षण; यह वह बिंदु था जहाँ से यात्रा प्रारंभ हुई थी।

5.1 प्राथमिक विद्यालय, बेरछी

प्रथम पड़ाव के रूप में सितम्बर 2002 में प्रथम त्रैमासिक परीक्षण किया गया । दिसम्बर 2002 में द्वितीय त्रैमासिक परीक्षण आयोजित हुआ। मार्च 2003 में तृतीय एवं अंतिम परीक्षण आयोजित किया गया। ये

चा परीक्षण डाईट द्वारा आयोजित किए गए। राज्य शिक्षा केंद्र भोपाल के नोडल व्यक्ति के निरीक्षण की वि नीयता उच्च स्तर की रही।

प्रा क विद्यालय बेरछी में आधार परीक्षण के समय कक्षा के सभी छात्र डी ग्रेड में रहे। किंतु शोध के प तीन माह में यात्रा के प्रथम पड़ाव पर डी ग्रेड के शत प्रतिशत छात्रों में से 78 प्रतिशत सी ग्रेड में े। यात्रा के द्वितीय पड़ाव पर यह संख्या बी ग्रेड में 59 प्रतिशत हो गई। अंतिम परीक्षण में शतप्रतिशत ई छात्रों में से 68 प्रतिशत ए ग्रेड में तथा शेष 32 प्रतिशत बी ग्रेड में पहुँच गए। इसी प्रकार कक्षा 2 आधार परीक्षण के समय 65 प्रतिशत छात्र डी ग्रेड में थे। इस समय सी ग्रेड में 18 प्रतिशत, बी ग्रे 12 प्रतिशत तथा ए ग्रेड में 5 प्रतिशत छात्र थे। कक्षा 2 में अंतिम परीक्षण के समय डी ग्रेड के प्रतिशत छात्रों की संख्या निरंक हो गई। साथ ही 5 प्रतिशत ए ग्रेड वाले छात्रों का प्रतिशत 68 प्रा त हो गया। कक्षा 3 में आधार परीक्षण के समय डी ग्रेड में 68 प्रतिशत छात्र, सी में 10 प्रतिशत, बी 16 प्रतिशत और ए ग्रेड में मात्र 6 प्रतिशत छात्र थे। किंतु अंतिम परीक्षा में डी ग्रेड निरंग, सी ग्रे 35 प्रतिशत और बी ग्रेड 50 प्रतिशत तथा ए ग्रेड में 15 प्रतिशत छात्र पहुँच गए। कक्षा 4 में आधार परी ण के समय डी ग्रेड में एवं सी ग्रेड में 46 - 46 प्रतिशत तथा बी और ए ग्रेड में 4 प्रतिशत छात्र थे तिम परीक्षण के समय सी और डी ग्रेड निरंक हुए, बी ग्रेड में 65 प्रतिशत तथा ए ग्रेड में 35 प्र त छात्र पहुँचे। कक्षा 5 में आधार परीक्षण के समय ए ग्रेड निरंक था जो अंतिम परीक्षण में 24 प्रतिशत हो ा। बी ग्रेड 18 प्रतिशत था जो अंतिम परीक्षण में 57 प्रतिशत हो गया। सी ग्रेड 23 प्रतिशत था ज तिम परीक्षण में मात्र 9 प्रतिशत रह गया तथा डी ग्रेड 59 प्रतिशत था जो अंतिम परीक्षण में मात्र 1 तिशत रह गया।

5 ई.जी.एस., मालीखेड़ी

च त शोध क्षेत्र की यह दूसरी शाला है। यहाँ भी आधार परीक्षण में कक्षा एक से सभी बच्चे डी ग्रेड प्रा कर सके थे, किंतु अंतिम परीक्षण में 87 प्रतिशत बच्चों ने बी ग्रेड तथा 13 प्रतिशत बच्चों ने ए ग्रे ाप्त किया। कक्षा 2 में आधार परीक्षण के समय ए और बी ग्रेड निरंक थे। सी ग्रेड में 56 प्रतिशत, डी ेड में 44 प्रतिशत छात्र थे। अंतिम परीक्षण में सी और डी ग्रेड निरंक था। बी ग्रेड में 82 प्रतिशत तथा ए ग्रेड में 18 प्रतिशत छात्र पहुँच गए। कक्षा 3 में आधार परीक्षण के समय ए और बी ग्रेड निरंक थे। सी ग्रेड में 60 प्रतिशत तथा डी ग्रेड में 40 प्रतिशत छात्र आए थे। अंतिम परीक्षण के समय सी और डी ग्रेड निरंक हो गए, बी ग्रेड में 87 प्रतिशत तथा ए ग्रेड में 13 प्रतिशत छात्र उत्तीर्ण हुए। कक्षा 4 में भी ए और बी ग्रेड निरंक थे। सी में 62 प्रतिशत तथा डी ग्रेड में 38 प्रतिशत छात्र थे। अंतिम परीक्षण में डी ग्रेड निरंक हुआ, सी में 18 प्रतिशत, बी में 73 प्रतिशत तथा ए ग्रेड में 9 प्रतिशत छात्र पहुँच गए। कक्षा 5 में आधार परीक्षण के समय ए और बी ग्रेड निरंक थे। अंतिम परीक्षण में ए ग्रेड 80 प्रतिशत पर पहुँच गया।

6.0 निष्कर्ष

परिणामसूचक इन आँकड़ों से जो चित्र उभरकर सामने आया वह स्पष्ट बता रहा है कि आधार परीक्षण के समय दोनों चयनित शालाओं में छात्रों का शैक्षिक स्तर बहुत निम्न था। नवाचार की प्रक्रियाएँ पूर्ण होने से पूर्व ही तीन तथा छः माह में छात्रों की गुणवत्ता आंकड़ों से परिलक्षित होने लगी। निःसंदेह इस नवाचार ने दो शालाओं में प्राण फूँक दिए।

शोध की यह यात्रा निर्बाध गति से चयनित क्षेत्रों का विकास करती जा रही है। यहाँ तक कि इस स ता के परिणामस्वरूप ग्राम बेरछी में एक निजी विद्यालय के लगभग 50 छात्रों ने अपना विद्यालय छो र शासकीय विद्यालय में प्रवेश ले लिया और निजी विद्यालय विवश होकर बंद करना पड़ा। यह चम ार इस नवाचार की पद्धति को अपनाने के पश्चात ही संभव हो सका। शोध में धनात्मक बिंदुओं के थ कठिनाइयों के क्षण भी अनेक आए, अनेक प्रश्न भी उठे जिनका उत्तर शोधार्थी द्वारा यथासंभव दिया ा। कतिपय अनुत्तरित प्रश्नों को भी भावी शोधार्थियों के लिए चुनौती स्वरूप छोड़ दिया गया। अभी इसमें र भी शोध की संभावनाएँ हैं। आशा है अन्य शोधकर्ता इसे सहज ही विकसित करेंगे।

7.0 उपसंहार

शोध की उपलब्धि छात्र-शिक्षक तथा कक्षा एवं संपूर्ण शाला के वातावरण में धनात्मक परिवर्तन े। सक्रियतापूर्वक इस निर्भय शाला वातावरण में सीखने-सिखाने की प्रक्रिया प्रतिस्पर्धा उत्पन्न करने में स म है। यह विधि तेजी से सीखने की प्रक्रिया में शतप्रतिशत सफल रही है।

शोध का पथ निरंतर संघर्ष का पथ है। इस पथ के पथिक को अनेक चुनौतियों का सामना करना ह ा है। इस शोध कार्य में भी व्यवधान आते रहे। मूल प्रश्न था नितांत प्रतिकूल परिस्थितियों में छात्रों के उपल - स्तर में वृद्धि का। उन छात्रों के उपलब्धि-स्तर में वृद्धि करनी थी जो प्रशासकीय प्रबंधनों के चलते अ ा अस्मिता तक विस्मृत कर चुके थे। निपट देहाती परिवेश के छात्र, जो अपने नाम का शुद्ध उच्चारण व ा में भी असमर्थ थे। विभिन्न मानसिक क्षमताओं-रुचियों, स्तरों वाले छात्रों के पृथक-पृथक समूहों की संर ा और फिर छात्रों द्वारा ही छात्रों के शिक्षण पद्धति का यह एक नूतन प्रयोग है। आशा है कि इस न ा प्रयोग से अन्य शिक्षक एवं शाला अध्यक्ष प्रोत्साहित होंगे तथा इस नवाचार का उपयुक्त प्रयोग क ।

परिशिष्ट- ‘क’

प्राथमिक विद्यालय बेरछी का कक्षावार तुलनात्मक परिणाम

	आधारभूत परीक्षण के प्राप्त परिणाम	प्रथम त्रैमासिक परीक्षण परिणाम	द्वितीय त्रैमासिक परीक्षण परिणाम	अंतिम परीक्षण परिणाम	तुलनात्मक अध्ययन	निष्कर्ष
	A ग्रेड =Nil B ग्रेड =Nil C ग्रेड =Nil D ग्रेड=100%	A ग्रेड =Nil B ग्रेड =Nil C ग्रेड =78% D ग्रेड =22%	A ग्रेड =Nil B ग्रेड =59% C ग्रेड =41% D ग्रेड =Nil	A ग्रेड = 68% B ग्रेड = 32% C ग्रेड =Nil D ग्रेड =Nil	• सीखने की औसत गति है। • A ग्रेड में वृद्धि। • C से B ग्रेड में वृद्धि। • सतत् अभ्यास का प्रभाव है	A ग्रेड कक्षा
	A ग्रेड = 5% B ग्रेड =12% C ग्रेड =18% D ग्रेड =65%	A ग्रेड =Nil B ग्रेड = 3% C ग्रेड =86% D ग्रेड =11%	A ग्रेड =5% B ग्रेड =45% C ग्रेड =45% D ग्रेड =5%	A ग्रेड = 68% B ग्रेड = 18% C ग्रेड = 14% D ग्रेड =Nil	B से A में वृद्धि। C से B ग्रेड में वृद्धि। D से C ग्रेड में वृद्धि। सतत् अभ्यास का प्रभाव है	A ग्रेड कक्षा
	A ग्रेड = 6% B ग्रेड =16% C ग्रेड =10% D ग्रेड =68%	A ग्रेड =Nil B ग्रेड =3% C ग्रेड =88% D ग्रेड = 9%	A ग्रेड =9% B ग्रेड =38% C ग्रेड =53% D ग्रेड =Nil	A ग्रेड = 15% B ग्रेड = 50% C ग्रेड = 35% D ग्रेड =Nil	A ग्रेड में वृद्धि। B ग्रेड में वृद्धि। C ग्रेड में वृद्धि। सतत् अभ्यास का प्रभाव है	B ग्रेड कक्षा
	A ग्रेड = 4% B ग्रेड = 4% C ग्रेड =46% D ग्रेड =46%	A ग्रेड =Nil B ग्रेड =20% C ग्रेड =76% D ग्रेड = 4%	A ग्रेड = 23% B ग्रेड = 50% C ग्रेड = 27% D ग्रेड =Nil	A ग्रेड = 35% B ग्रेड = 65% C ग्रेड =Nil D ग्रेड =Nil	A ग्रेड में वृद्धि। B ग्रेड में वृद्धि। C ग्रेड में वृद्धि। सतत् अभ्यास का प्रभाव है	B ग्रेड कक्षा
5	A ग्रेड =Nil B ग्रेड =18% C ग्रेड =23% D ग्रेड =59%	A ग्रेड = 5% B ग्रेड =40% C ग्रेड =30% D ग्रेड =25%	A ग्रेड = 20% B ग्रेड = 45% C ग्रेड = 30% D ग्रेड = 5%	A ग्रेड = 24% B ग्रेड = 57% C ग्रेड = 9% D ग्रेड = 10%	A ग्रेड में बढ़ते क्रम में वृद्धि। B ग्रेड में बढ़ते क्रम में वृद्धि। C ग्रेड में कमी आई वृद्धि। ग्रेड D में 10% कमजोर बच्चे रहे।	B ग्रेड कक्षा

शिक्षा गारंटी शाला मालीखेड़ी का कक्षावार तुलनात्मक परिणाम

कक्षा	आधारभूत परीक्षण के प्राप्त परिणाम	प्रथम त्रैमासिक परीक्षण परिणाम	द्वितीय त्रैमासिक परीक्षण परिणाम	अंतिम परीक्षण	तुलनात्मक अध्ययन	निष्कर्ष
1	सभी बच्चे नवीन प्रवेशी होने से प्राप्त ग्रेड D	A ग्रेड = 7% B ग्रेड =33% C ग्रेड =47% D ग्रेड =13%	A ग्रेड = 7% B ग्रेड =33% C ग्रेड =47% D ग्रेड =13%	A ग्रेड =13% B ग्रेड = 87% C ग्रेड =Nil D ग्रेड =Nil	सीखने की गति प्रथम 6 माह समान रही। अंतिम 3 माह में परिवर्तन। सभी छात्र A, B ग्रेड में। सतत् अभ्यास व सतत् मूल्यांकन का प्रभाव है	अधिकांशतः B ग्रेड में
2	A ग्रेड = Nil B ग्रेड = Nil C ग्रेड =56% D ग्रेड =44%	A ग्रेड =18% B ग्रेड =55% C ग्रेड =27% D ग्रेड = Nil	A ग्रेड =18% B ग्रेड =46% C ग्रेड =36% D ग्रेड = Nil	A ग्रेड =18% B ग्रेड = 82% C ग्रेड = Nil D ग्रेड = Nil	कक्षा 2 के बच्चों में जो एकदम अच्छे थे, अच्छे रहे। अंतिम 3 माह में परिवर्तन। सभी छात्र A, B ग्रेड में। सतत् अभ्यास व सतत् मूल्यांकन का प्रभाव है	अधिकांशतः B ग्रेड में
3	A ग्रेड = Nil B ग्रेड = Nil C ग्रेड =60% D ग्रेड =40%	A ग्रेड =Nil B ग्रेड =62% C ग्रेड =38% D ग्रेड = Nil	A ग्रेड = Nil B ग्रेड =62% C ग्रेड =38% D ग्रेड =Nil	A ग्रेड =13% B ग्रेड =87% C ग्रेड = Nil D ग्रेड =Nil	सीखने की गति प्रथम 6 माह समान रही। अंतिम 3 माह में परिवर्तन। अंतिम परीक्षण में सभी छात्र A, B ग्रेड में। सतत् अभ्यास व सतत मूल्यांकन का प्रभाव है	अधिकांशतः B ग्रेड में
4	A ग्रेड = Nil B ग्रेड = Nil C ग्रेड =62% D ग्रेड =38%	A ग्रेड =9 % B ग्रेड =55% C ग्रेड =27% D ग्रेड = 9%	A ग्रेड = 9% B ग्रेड = 55% C ग्रेड = 36% D ग्रेड =Nil	A ग्रेड = 9% B ग्रेड =73% C ग्रेड =18% D ग्रेड =Nil	A ग्रेड की स्थिति समान है B ग्रेड के बच्चों में वृद्धि। C ग्रेड के बच्चों में कमी। सभी छात्र A, B ग्रेड में।	अधिकांशतः B ग्रेड में
5	A ग्रेड =Nil B ग्रेड =Nil C ग्रेड =75% D ग्रेड =25%	A ग्रेड = Nil B ग्रेड =40% C ग्रेड =60% D ग्रेड = Nil	A ग्रेड = Nil B ग्रेड = 40% C ग्रेड = 60% D ग्रेड = Nil	A ग्रेड =Nil B ग्रेड =80% C ग्रेड =20% D ग्रेड = Nil	B ग्रेड के बच्चों में वृद्धि। C ग्रेड के बच्चों में कमी। D ग्रेड में निरंक। अधिकांश छात्र B ग्रेड में।	अधिकांशतः B ग्रेड में

विशेष:

- अंतिम मूल्यांकन के आधार पर कक्षा 1 से 5 तक के 82 प्रतिशत के छात्र B ग्रेड के हैं।
- अंतिम मूल्यांकन के आधार पर कक्षा 1 से 5 तक के 12 प्रतिशत के छात्र A ग्रेड के हैं।
- अंतिम मूल्यांकन के आधार पर कक्षा 1 से 5 तक के 6 प्रतिशत के छात्र C ग्रेड के हैं।

BIBLIOGRAPHY

Books

Agarwal, Mamta. (1991), *Communicative Tests of Reading and Writing in English.* New Delhi: NCERT.

Aggarwal, Reena. (1999), *Mathematics 1to3.* Chennai: Tamil Nadu Text Book Corporation.

_________ (1999), *Science 1 to 8.* Chennai: Tamil Nadu Text Book Corporation.

Aggarwal, J.C. (1997), *Essentials of Educational Technology: Teaching Learning.* Delhi: Vikas Publishing House.

Ahmed, Tabassum. (1996), *Research in Teaching of Biology.* New Delhi: A.P.H. Publishing Corporation.

Balasubramanian, T. (1995), *A Textbook of English Phonetics.* Madras: MacMillan India.

Beauchamp, W.L., Mayfield J.C. and Young West J.Y. (1948), *Everyday Problems in Science.* Toronto, W.J. Gage & Co.

Best J.W., (1986), *Research in Education.* New Delhi: Prentice-Hall of India.

Best John. W., and Khan James. H. (1999), *Research in Education.* New Delhi: Prentice-Hall of India.

Bhaskararao, Digumarti. (1998), *District Primary Education Programme.* New Delhi: Discovery Publishing House.

Brahadeeswaran, D., and Ramachandran, A. A. (1990), *Applied Science: Chemistry & Physics.* New Delhi: Tata McGraw-Hill.

Bryan, Coombs. (2002), *Successful Teaching – A Practical Hand Book.* Oxford: Heinemann Educational Publishers.

Cheek, D.W., Briggs, Robert., and Yager, R.E. (1992), *Science Curriculum Resource Handbook.* California: Corwin Press.

Couper, Heather., and Henbest, Nigel. (1999), *Space Encyclopedia.* London: Dorling- Kindersly.

Das Gupta, A., and Kapoor, A.N. (1977), *Principles of Physical Geography,* (7th ed). New Delhi: S.Chand and Co.

Dutt, Suresh. (1998), *Experiments in Teaching for Child Development.* New Delhi: Anmol Publications Pvt. Ltd.

Flavell, R.H., and Vincent, M. (1986), *Essential Language Teaching Skills.* New York : McMillan.

Ganapathy, K. (ed.), (1991), *Spoken English.* Madras: Shantha Publishers.

Greenwood, Jean. (1997), Activity *Box: A Resource Book for Teachers of Young Students.* London: Cambridge University Press.

Gupta, S.K. (1981), *Teaching Physical Sciences in Secondary Schools.* New Delhi: Sterling.

Harry, Chand. (1990), Techniques *of Teaching.* New Delhi: Ashish Publishing House.

Hornby, A.S., and Parnwell, E.C. (1968), *English Reader's Dictionary*. London: Oxford University Press.

Howell, Joseph. H., and Dunivant, Stephen. W. (2001), *Technology for Teachers*. New Delhi: Tata Mc- Graw Hill.

Jacobson, W. J., and Tannenbaum. H. E. (1961). *Modern Elementary School Science*. Columbia University: Teachers College Press.

Jessop,T. (1998), *Case Study Research : A Model of Best Practice at Loreto Day School.* Sealdah, Calcutta : DFID (India), Education Sector Group.

Kale, Bhagwan. (1990), *Aamcha Jalna Zilla.* Jalna: Shriket Prakashan.

Kashyap. S.C. (1990), *National Policy Studies*. New Delhi: Tata McGraw-Hill.

Khan, M.S. (1990), *Educational Research*. New Delhi: Ashish Publishing House.

Kleinschmidt, H.E. (1950), *How to Turn Ideas into Pictures*. New York: National Publicity Council.

Kochhar, S.K.(2002), *Methods and Techniques of Teaching*. New Delhi: Sterling.

Kohli, A.I. (1993), *Techniques of Teaching English*. Delhi : Dhanpat Rai & Sons.

Koul, Lokesh. (1997), *Methodology of Educational Research*. New Delhi: Vikas Publishing House.

Kramer. (1999), *Children's Illustrated Encyclopedia*. London: Dorling Kindersly.

Kumar, A. (1995), *Teaching of Physical Sciences*. New Delhi: Anmol Publications.

Lindgreen, H.C. (1962), *Educational Psychology in the Classroom*. New York: John Wiley.

Misra, K.S. (1992), *Perspectives in Science Education*. Agra: Vinod Pustak Mandir.

Natraj, Geetha. (1994), *English at Work*. Madras: Oxford University Press.

Patil, Ramakant. (1999), *Antarang Nandurbar Zillyache*. Shri Prakash Patil: Nandurbar.

Pradhan, Nityananda, (2001), *Problems of Educating Children in Tribal Communities: Case Study of a Village in Koraput District of Orissa*. New Delhi: NCERT.

Prasad, Janardan., and Kaushik, Vijayakumari. (1997), *Advanced Educational Technology*. New Delhi: Kanishka Publishers.

Raghavan, S.S. (2003), *Project Based Learning in Science: A Handbook for Teachers*. Mysore : Regional Institute of Education (NCERT).

Rai, B.C. (1999), *Method of Teaching Science*. Lucknow: Prakashan Kendra.

Rajbir. (2001), *Action Research*. Palwal (KKR): District Institute of Education and Training.

Rao, D.B. (1996), *National Policy on Education. Vol. (2)*. New Delhi: Anmol Publications.

Ravi, N.C. (1997), *Learning Science at the Primary Stage: The Hindu Speaks on Education*. Chennai: Kasturi & Sons.

Sahgal, A.C., and Sahgal, M. (1997), *Living Science*. New Delhi: Ratna Sagar.

Salvin, R. (1990), *Co-operative learning*. Englewood Cliffs, N.J: Prentice Hall.

Satish, Kumar. (2001), *Action Research.* Palwal (KKR): District Institute of Education and Training.

Sharma, R.C. (1994), *Modern Science Teaching.* Delhi: Dhanpat Rai & Sons.

Shelagh, Rixon. (1986), *Developing Listening Skills.* New York: McMillan.

Shipman, J.T., Wilson,J.D., and Todd, A.W. (1997), *An Introduction to Physical Science.* Boston: Houghton- Miffin.

Sinha, G.S. (2000), *Encyclopedia of Educational Development .Vol (4).* New Delhi: Common Wealth Publishers.

Strabler, N., and Strabler, H. (1976), *Elements of Physical Geography* (3rd ed.) U.S.A.

Stratton, Peter., & Hayes, Nicky. (1988), *A Student's Dictionary of Psychology.* New York: Arnold.

Swaminathapillai, S. (ed.), (1993), *Teaching of English in Elementary Education.* Madras: Pavai Printers.

Vaid, D. D. (1994), *How to Speak and Write Better English.* New Delhi: Orient Paperbacks.

Venkataiah, N. (1996), *Educational Technology.* New Delhi: APH Publishing Corporation.

Venkateswaran, S. (1997), *Principles of Teaching English.* Delhi: Vikas Publishing House.

Verma, O.P., and Vedanayagam, E.G. (1991), *Geography Teaching* (4th ed.). New Delhi: Sterling.

Vessel, M.F. (1965), *Elementary School Science Teaching.* New Delhi: Prentice Hall of India Pvt. Ltd.,

Waddington, D.J. (ed.) (1984), *Teaching School Chemistry.* New Delhi: Sterling.

Yadav, M.S.(1992), *Teaching of Science.* New Delhi: Anmol Publications.

Yin, R.K. (1994), *Case Study Research: Design and Method.* New Delhi.

Zackariah, Lalitha. (et al), (2001), *India 2001- A Reference.* New Delhi: Ministry of Information & Broadcasting, Govt.of India.

Zoe, A. Thralls. (1958), *The Teaching of Geography.* New Delhi, Eurasia.

Articles

Agarwal, Reena. (2002), 'Problems Related to the Use of Audio – Visual Aids in Science Teaching'. *School Science,* 40(1)

Aruchami, M. (2004), 'Quality Imperatives in Higher Education', *University News,* 42(05). New Delhi: Association of Indian Universities.

Ayyer, RBU. (1996), 'Human Rights and Fundamental Education'. (Paper presented in the seminary organized by National Human Rights Commission, Bangalore).

Ballantyne, R.R. (1995), 'Environmental Teacher Education: Constraints, Approaches and Course Design'. *International Journal of Environmental Education,* Vol. 14, No.2.

Bloomer, A.C. (1984), 'Effect of Co-operative Learning on the Acquisition of Basic Computin Skills: A Pragmatic Approach to Developing Cost-effective Training Methods for the Nati Adult Learner'. *Dissertation Abstract International,* 45(8).

Buch, M.B. (1988), 'Family Background Variables, Some Motivational Variables, Cogniti Characteristics and the School Performance of the Primary School Children'. *Vth Survey, V II.*

Budholia, O.P. (2002), 'Universalization of Elementary Education: A Challenge For the Thi Millennium'. *Miracle of Teaching,* Vol II, No2.

Chatterjee, Bhaskar., and Qutub, Khan. (2003), 'Basic Education: The Quality Puzzle', IDPAL Indo-Dutsch Programme on Alternatives in Development, *Vol. I, No.* 1ICSSR, New Delhi.

Dave, P.N. (2003), 'Education of the Young Child: Curriculum Design and Process. *Perspective in Education.* 19(3).

Easwari, P.(2003), Effect of Pupil Location on the Mastery of EVS Competencies in Standard *The Primary Teacher,* 28(1).

Ediger, Marlow. (2003), 'Design and the Science Curriculum'. *School Science,* XLI (1).

Estep, D.F. (1992), 'An Investigation of the Effect of Direct Instruction and Co-Operative Learnin Groups on the Performance of Fourth-Grade Readers in Social Studies'. *Dissertation Abstra International,* 53 (5).

Govinda, R. (2003), 'Providing Elementary Education For All: Challenges To Teacher Educatio *Miracle of Teaching,* Vol III, No2

Halim, Md. Abdul. (2004), 'Quality Issues in the Higher Education Institutions in Banglades *University News* 42 (02). New Delhi: Association of Indian Universities.

James, L. (1985), 'Effects of a Co-Operative Team Learning Strategy on Student Achievement a Related Components of Classroom Climate. *Dissertation Abstract International,* 46 (9).

Jerry, C. (1992), 'The Effect of a Co-Operative Learning on College Students' Achievement i Developmental Intermediate Algebra'. *Dissertation Abstract International,* 53 (4).

Johnson, D. (1999), 'Effects of a Co-operative, Competitive and Individualistic Goal Structure on Achievement: A Meta-analysis'. *American Journal of Educational Research,* 42.

Kalaiyarasan, G., and Krishnaraj, R. (2002), 'Effectiveness of a Co-operative Learning Approaches in Learning Science at Secondary Level'. *Journal of Educational Research and Extension,* 39 (3).

Kar, Dhirendra Kumar. (1994), 'Dealing with Mathematical Anxieties'. *School Science,* 38(1).

Kulkarni, S. (2002), 'Malnourished Women in Maharashtra'. *Human Scape,* Vol. IX, Issue XII

Kumar, Lalit. (2003), 'Using Learner's Nature and Innate Tendencies as Basis for Teaching-Learning Process'. *The Primary Teacher.* 28(2).

Mani, R.S. (2001), 'New Approaches of Teaching Science'. *Recent Researches in Education and Psychology.* 6(1&2).

Mead, A., and Rubin, D.L. (2002), 'Assessing Listening and Speaking Skills'. *ERIC Digest.*

Mehta, R., and Usha, S. (2000), *Environment Education: Policies and Initiatives of the Ministry of Environment and Forests.* Proceeding of the Conference on "Environmental Education of the New Century' Chennai: C.P.Ramaswamy Aiyar Environmental Education Centre.

Mishra, Susani., and Basantia, T.K. (2003), 'Effect of Competency Based Evaluation on Students' Attainment at Primary Level'. *The Primary Teacher.* 28(2).

Nayar, Ajitha., K. and Pushpam, K. (2000), 'Willingness of Secondary School Teachers of Biology to Use Training Aids'. *School Science* 38(4).

Oliver, G.W. (1990), 'The Effects of Co-operative Learning in Acquiring Competencies for Computer Applications'. *Dissertation Abstract International,* 51 (3), P. 826.

Padya, Rameshwari. (2001), Importance of Imparting Population Education. *Indian Educational Review* 107. (1)

Panda, B.N. (2003), 'Co-operative Learning', (paper presented in the refresher course in education at Academic Staff College, Lucknow: Lucknow University).

Patnaik, Sabita. P., and Seetharmappa, J. (1994), 'Science Club Activities in Schools'. *School Science,* 32 (1).

Patten, L.A. (2002), 'Studies on increasing minority enrolment in Arizona University'. *Dissertation Abstract International,* Vol. 63, No. 2.

Rai, K. (1993), 'Co-operation Based Learning Strategies among Disabled and Non-disabled Children in Integrated Schools Settings'. *Indian Educational Review,* 35 (3).

Ram Avtar. (2000), 'New Approach to Science Teaching'. *School Science,* 38(1).

Rama, K.S. (2003), 'Effectiveness of Playway Technique in Teaching of Science at Upper Primary Stage – An Experimental Study'. *The Primary Teacher.* 28(1).

Reevees, C.M. (1990), 'A Comparison of Cognitive and Affective Outcomes among Co-operative Learning Teams of Mixed and Uniform Ability'. *Dissertation Abstract International,* 52 (1).

Ruth, K.K. (2002), 'Retaining Children in Schools through Playway and Activity Based Methods'. *Primary Teacher,* Vol. XXVII No. 3.

Sahni, A.K. (2002), 'Organization of Science in the School'. *PTA Magazine.* 40(7).

Saiful, I.M. (2001), 'Studies of Factors Responsible for Primary School Dropouts in Rural Bangladesh'. *Dissertation Abstract International,* Vol. 6, No. 11.

Sangai, Sandhya. (2002), 'Streamlining Universalisation of Elementary Education'. *The Primary Teacher.* 27 (2).

Sehgal, N.K.(1992), 'Social Role of Scientists'. *NCSTC Communications.* 3(2).

Sharma, H.C. (1981), 'Effect of the Stay of Teachers on the Enrolment and Retention of Boys and Girls in Primary Schools', *IV Survey,* Vol. II.

Sharma, A. (1997), 'Developing a Global Environmental Perspective in the School Curriculum India: An Exploratory Study'. *Indian Journal of Environmental Education and Information.* V 16, No.3.

Shukla, R.D. (2001), 'Teaching of Science and Technology at School Level'. *School Scienc* 39(1).

Shukla, Shraddha. (2003), 'Strengthening Primary Education: The Heart of The System', *Mirac of Teaching*, Vol III, No. 2.

Singh, M., and Rai, K. (2002), 'Co-operative learning – An Innovative Learning Strategy'. *Th Primary Teacher*, 27 (4).

Thaker, Manhar. (2002), 'Inquiry for the Science Laboratory Effectiveness of Secondary Schools'. *School Science.* 40(1).

Thaker, M. (2002), 'Inquiry for the Science Laboratory Effectiveness & Secondary Schools'. *School Science.* 40(1).

Tirkey, U.T.(2001), 'The Rise of Modern Indian Science'. *NCSTC Communications.* 13(7).

Wheatland, J.A. (2001), 'Relationship between Bridge Program and Academic Performance and Retention Status of First Time Freshman Science Engineering, and Mathematics Students at Morgan State University.' *Dissertation Abstract International,* Vol. 61, No. 12.

Wolfenshon, James D. (2000), 'A Time for Action: Placing Education at the Core of Development'. (Paper presented at the World Education Forum, Dakar: Senegal).

Budholia O.P, 2002. *Universalization of Elementary Education : A Challenge For the Third Mille*

DISSERTATIONS

Chellamani, K. (2001), 'Efficacy of Psycholinguistic Intervention and Metacognition on Reading Comprehension among High School Entrants', *Alagappa University,* unpublished doctoral thesis.

Leimatombi, S. (2003), 'Relative Effectiveness of Activity Based Learning and Co-operative Learning Strategies on Science Achievements of Elementary School Children'. *M.Ed.* Dissertation, Bhubaneswar: RIE (NECRT).

Murmu, S.K. (2003), 'Relative Effectiveness of Co-operative Learning and Mastery Learning Strategies on Science Achievements of Elementary School Children'. *M.Ed. Dissertation, Bhubaneswar: RIE, (NCERT).*

Parida, R. (2003), 'Effect of Co-operative Learning in Enhancing Achievement and Sociability of Elementary School Children'. M.Ed. Dissertation. Bhubaneswar: RIE (NCERT).

Reports

CENSUS (2001), *Handbook,* New Delhi: Government of India.

CHETNA (2000), *Module for Teleconferencing on Action Research*, Chandigarh, Haryana Prathmik Shiksha Pariyojna Parishad.

R.E.F.C (2003), C.P.R. Environmental Education Center, *Annual Report 2002 – 2003.* Chennai: *C.P.* Ramaswamy Aiyar Foundation.

P-SSA (2000-01), *Perspective Plan -Visakhapatnam District*, SSA / DPEP

SHTI (1999), *Teacher Training Module for Teachers on Action Research*, Chandigarh, Haryana Prathmik Shiksha Pariyojna Parishad.

ucation For All – Erode District (2000), *Perspective Plan for 2001 – 2010.*

ucation For All - Erode District (2003), *EGS & AIE Monthly Report* Oct. & Nov. 2003.

obal Movement for Children (1990), *Convention on the Rights of the Child*, World Summit for Children, New York.

overnment of Tamil Nadu – DEEP - EFA (2003), *Project Activities Guideline Handbook.*

ody,L. (1995), *The Educational Efficacy of Environmental Education,* An Interim Report. State Education and Environment Roundtable, http://www.seer.org.

nshala (2002), *Towards Empowered Community Schools*, New Delhi: MHRD.

nes, L.C., Penwell R. and Hakverdi, M. (2003): *The Status of Environmental Education in Latin American Middle and High Schools.* http.//grove.ufl.edu/nmerd/Latin America EE. Htm.

HRD, Government of India, (2001), *Handbook for Education Guarantee Scheme and Alternative and Innovative Education.*

____________ (2001), *SSA – A Programme for Universal Elementary Education: Framework for Implementation.*

____________ *National Policy on Education 1986.*

____________ *Programme of Action, 1992.*

____________ Report of the Working Group on *Elementary Education, Non-formal Education, Early Childhood Education and Education for the IX Five Year Plan.* (1996) MHRD, New Delhi.

____________ (2001), *Every Child in School and Every Child Learning: Diversified Strategies for Universalizing Access to Schooling.*

____________, *Training Programme – 2001: Perspective Planning for UEE*: Mussorrie, NSDART.

NCERT, (2000), *National Curriculum Framework for School Education.* New Delhi: NCERT.

________ (2001), *Environmental Orientation to School Education – A Training Module for Southern Region.* New Delhi: NCERT.

________ (2002), *The Primary Teacher*, VOL XXVII No.3, New Delhi: NCERT.

Tamil Nadu Book Society. *SOCIAL SCIENCE for Standard VIII.*

Tamil Nadu Text Book Corporation,(2001), *English Language Education*, Source Book for the Diploma in Teacher Education, Chennai.

__________, (2003),*Chemistry for standard XII* . Chennai.

__________, *Science for standard VII*. Chennai

UNICEF (1999), *The State of the World's Children.* New York: UNICEF Headquarters, United Nations Plaza 29.

LIST OF CONTRIBUTERS

1. Dr. S.K. Gandhe
Director General
Indian Institute of Education
Pune, Maharashtra

2. Dr. Y. Bhaskaracharyulu
Associate Professor
Dept. of Adult and Continuing Education,
Andhra University
Visakhapatnam – 530 003
Andhra Pradesh

3. Mrs. Manju Rajoria
Sr. Lecturer
MP SCERT,
Rajya Shiksha Kendra
Arera Hills
Bhopal – 462 013
Madhya Pradesh

4. Dr. Anil Shukla
Reader
Dept. of Education
University of Lucknow
Lucknow
Uttar Pradesh

5. Dr. D.K. Chakraborty
Principal,
David Hare Training College, IASE
Kolkata – 700 019

6. Dr. S. Vincent De Paul
Sr. Lecturer and Head
District Institute of Education
and Training
Pudukkottai – 622 004
Tamil Nadu

7. Shri M.N. Bapat
Regional Institute of Education
Mysore – 570 006

8. Shri N R Nagaraja Rao
Regional Institute of Education
Mysore – 570 006

9. Dr. B. N Panda
Reader
Regional Institute of Education
NCERT, Bhubaneshwar-751 022
Orissa

10. Sh. Vinod Kumar Gupta
Lecturer,
District Institute of Education & Training
PSM Parishara
Jabalpur
Madhya Pradesh

11. Sh. Rang Bahadar Singh
Lecturer,
District Institute of Education & Training
Dehradun
Uttaranchal

12. Ms. L. Sundra Meenakshi
Lecturer,
District Institute of Education &
Training
Virudhunagar District
Tamil Nadu

13. Dr. (Ms.) K Chellamani
Senior Lecturer
District Institute of Education &
Training,
Perundurai
Erode, Tamil Nadu

14. Prof. S. Mohan
Professor & Head
Dept. of Education
Algappa University
Karaikudi
Tamil Nadu

15. Dr. Lakh Narain Pandey
Sr. Lecturer,
District Institute of Education &
Training
Rewa – 486 001
Madhya Pradesh

16. Ms. C. Jeyalakshmi
Sr. Lecturer,
District Institute of Education &
Training
Palayampatti
Virudhunagar District
Tamil Nadu

17. Sh. M. Chinnappan
Lecturer,
District Institute of Education & Training
Kurukkathi - 611 105
Nagapattinam District
Tamil Nadu

18. Sh. M. Selvam
Lecturer,
District Institute of Education & Training
Aduthurai – 612 101
Thanjavur District
Tamil Nadu

19. Sh. K. Sampath
Lecturer,
District Institute of Education &
Training
Vadadalur – 607 303
Cuddalore District
Tamil Nadu

20. Shri T. Sundaramoorthy
C. P. Ramaswamy Aiyar
Environmental Education Centre,
1, Eldams Road
Chennai – 600 028

21. Shri V. Ramalingam
Environmental Education Cell
State Training Centre
Directorate of School Education
Pondicherry – 605 008

22. Mrs. M. Mihuraj Fatima
Sr. Lecturer,
District Institute of Education & Training
Palayampatti – 626 112
Virudhnagar District
Tamil Nadu

23. R. Kailasavani
Lecturer,
District Institute of Education &
Training
Palayampatti – 626 112
Virudhunagar District
Tamil Nadu

24. Dr. Nimma Venkata Rao
Associate Professor
Department of Education
Andhra University
Visakhapatnam
Andhra Pradesh

25. Mr. B. B. Rao Kandregula
Research Scholar
Dept. of Education
Andhra University
Viskhapatnam
Andhra Pradesh

26. Dr. P. Jayaraman
Sr. Lecturer,
District Institute of Education
Training
Perundurai – 638 003
Tamil Nadu

27. Dr. Krishna Kumari
Lecturer,
Sohan lal DAV College of Education
(IASE), Ambala
Haryana

28. Sh. M. Mathiazhagan
Lecturer
District Institute of Education
Training
Vadalur,
Cuddalore District
Tamil Nadu

29. Sh. R. Anbazhagan
Lecturer
District Institute of Education &
Training
Vadalur
Cuddalore District
Tamil Nadu

30. Sh. Laxminarayan Acharya
Lecturer,
District Institute of Education &
Trianing
Shajapur – 465 001
Madhya Pradesh

31. Ms. Vanitha Daniel
Lecturer,
District Institute of Education &
Training
Kurukkathi
Tamil Nadu

INDEX

Ar hagan, R	5, 203
Alternative/Innovative Education Scheme	9, 181, 182, 183, 185, 186, 187, 188, 189
Anganwadi	22
Anganwadi Centres	23
B aracharyulu, Y	2, 17
Block Resource Coordinator	2, 24, 25
Block Resource Centre	25, 185, 186, 188, 208
B , M.N	3, 50
C raborty, D.K.	3, 36
Child-centred Learning	3
Cooperative Learning Approach	3, 65, 68
Ch amani, K.	4, 86
C nappan, M.	4, 121
Cluster Resource Centre	138, 199
District Institute of Education and Training (DIET)	I, 84, 86, 97, 99, 138, 152, 162, 173, 183, 184, 185, 186, 188, 193, 194, 208
District Primary Education Programme (DPEP)	2, 4, 17, 18, 19, 20, 21, 22, 23, 29, 138, 172, 173, 174, 177, 180, 181, 182, 185, 191, 192, 193, 194, 208, 235
Dakar Frame For Action	I, 7
D el, Vanitha	5, 210
Early Childhood Care and Education (ECCE)	5, 203
Education Guarantee Scheme	9, 181, 182, 183, 184, 185, 186, 187, 189, 207, 208, 253
Education for All	12, 29, 84, 130
Education Commission Report (1964-66)	86, 132, 162
F ma, M.M.	4, 152
G ndhe, S.K.	2, 6
G pta, Vinod Kumar	3, 222
Gram Panchayats	8
Gross Domestic Product (GDP)	15
Human Deveopment Report	17
Institue of Advanced Studies in Education (IASE)	I, 37
Information, Communication Technology (ICT)	2
Indian Institute of Education	2
ICDS	23, 207
ILO	27, 30
Jan Shikshak Kendra	24, 25
Janshala Scheme	3, 27, 29, 30, 34
Jeyalakshmi, C	4, 106
Jayaraman, P	5, 181
Kunjapuri Model	3, 4, 235, 238, 239, 243, 244
Kailasavani, R	4, 164
Kandregula, B.B. Rao	4, 172
Krishna Kumari	5, 10, 191
Laxminarayan, Acharya	5, 248
Multi-grade Schooling/Teaching	3, 5, 196, 248
Meenakshi, L.S.	4, 70
Mohan, S	4, 86
Mathiazhagan, M	5, 203

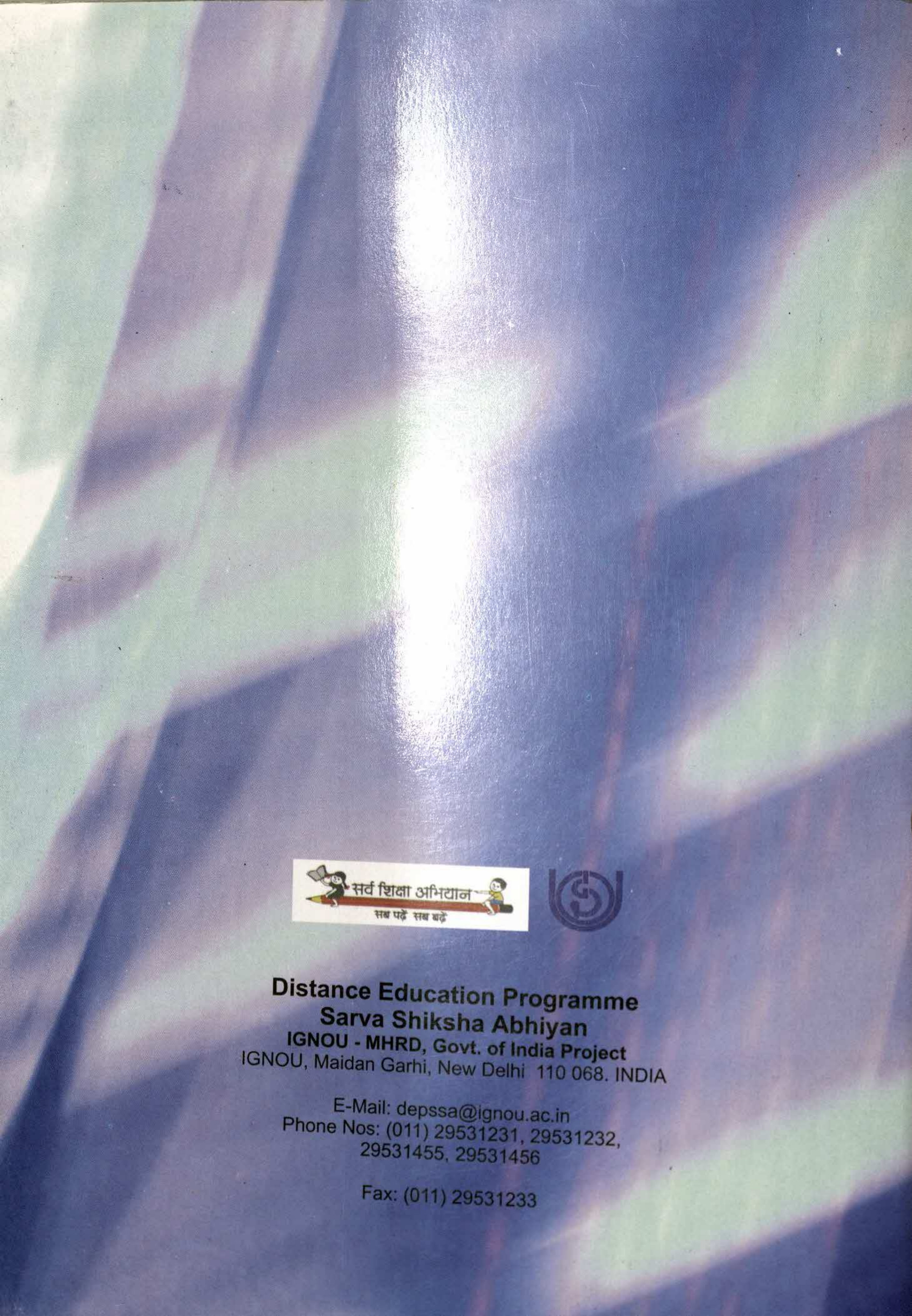
Mid-day Meal Scheme 13
Mahila Mandals 22
Minimum Levels of Learning (MLL) 42, 173
Mahila Samakhya 82
Non-governmental Organisation (NGO) 2, 18, 19, 22, 23, 27, 32, 186, 188, 207, 208
National Policy on Education 6, 30, 31, 130, 140, 141, 173, 3
N.R.: Nagaraja Rao 0
NCERT 140, 2
Nimma. Venkata Rao 2
National Programme for Nutritional Support for Primary Education 2
Panda, B.N 3, 5
Pandey Lakh Narain 4, 7
Parent Teacher Association (PTA) 18
Population Education 42
Rajoria, Manju 2, 24
Rang Bahadur Singh 3, 5
Ramalingam, V 4, 0
Sarva Shiksha Abhiyan I, 6, 9, 17, 19, 20, 25, 130, 173, 181, 185, 187, 188, 203, 207, 8
State Council of Educational Research and Training (SCERT) 1, 192, 193, 4
Shukla, Anil 3,
Selvam, M 4,
Sampath, K 4,
Sundaramoorthy, T 4,
TLM 7, 10, 72, 84, 130, 131, 133, 185, 186, 1
Taluka Samitis
Universalization of Elementary Education 6, 17, 40, 130, 172, 173, 181, 1
UNDP 27, 29, 30, 1
UNICEF 27, 2
UNESCO 27, 29, 30
UNFPA 27, 29, 30
University Grants Commission 141
Village Education Committee 18, 184, 185, 186, 188, 194, 196, 198, 208
Women's Groups (WGs) 18
World Children Report 28
Zila Parishads 8

I.C.H.R. Library
35/3, B.C. Road

सर्व शिक्षा अभियान

सब पढ़ें सब बढ़ें

The teacher has to play multi-dimensional roles of acting as subject teacher, experimentalist, innovator, guide and above all constant learner. Innovative and good class room practices can flow only from a focused mindset and from commitment for the noble profession of teaching and learning. The contributions by teachers and teacher educators, which have been included in this publication strongly reflect this professional mindset and commitment. It is expected that this publication will encourage others too for replication.



सर्व शिक्षा अभियान
सब पढ़ें सब बढ़ें

Distance Education Programme
Sarva Shiksha Abhiyan
IGNOU - MHRD, Govt. of India Project
IGNOU, Maidan Garhi, New Delhi 110 068. INDIA

E-Mail: depssa@ignou.ac.in
Phone Nos: (011) 29531231, 29531232,
29531455, 29531456

Fax: (011) 29531233